DECEMBER 25, 1921

THE RUBBER AGE

VOL. X. NO. 6

Copyright, 1921, by The Gardner, Moffat Co. Inc.

INDEX TO CONTENTS

Annual Dinner of the Rubber Trade Association of New York 197
Election of Officers of the Rubber Trade Assn. of New York 200
Recent Developments in the Art of Rubber Microsectioning. By Henry Green 201
New Uses of Rubber 204
Use of Rubber as Fuel 206
Abstracts 207
NEWS OF THE INDUSTRY
Going Away Dinner to Chas. C. Wilson; Dinner to Seneca G. Lewis 208
Annual Meeting of New Jersey Rubber Association; Frank Duryea Voorhees; Sterling Conversion Tables Issued; New Offices for Fabric Tire Hose 209
Schedule of Rubber Association Meetings; Rubber Association Directors; G. B. Hodgman Treasurer of Rubber Association; Mid-Wests's Monthly Meeting 210
E. G. Wilmer in South America; Personal; Clayton E. Platt Elected on New York Rubber Co. Board; November Importations of Crude Rubber 211
MARKETS
Cottons, Yarns and Fabrics 212
Chemicals and Compounding Ingredients 213
Crude Rubber; Reclaimed Rubber; Scrap Rubber 214
New Incorporations 215

PUBLISHED ON THE 10th AND 25th OF EACH MONTH BY

THE GARDNER, MOFFAT COMPANY, Inc.

PUBLICATION OFFICE: HIGHLAND, N. Y.

ADDRESS ALL CORRESPONDENCE TO BUSINESS AND EDITORIAL ROOMS: 225 FOURTH AVENUE, NEW YORK

Telephone: Stuyvesant 4552

Advertising Forms Close Seven Days Before Date of Publication. Rates for Advertising Will Be Furnished on Application.
Subscription Price: $2.00 per Annum. Single Copies 10 Cents. Canada, $2.50 per Annum. Foreign, $3.00 per Annum.

CABLE ADDRESS
"REDSONDER, NEW YORK"
LIEBER'S
A. B. C, 5th EDITION AND
PRIVATE CODES

FRANCIS R. HENDERSON
HAROLD H. HENDERSON
BANCROFT W. HENDERSON

F. R. HENDERSON & CO.

CRUDE RUBBER

111 BROADWAY, NEW YORK

LONDON
HENDERSON, FORBES & CO., Ltd.
SINGAPORE
HENDERSON BROS., Limited
BATAVIA
HENDERSON, KEULEMANS CO., Ltd.

AKRON, OHIO
F. R. HENDERSON & CO,
CHICAGO, ILL.
F. R. HENDERSON & CO,

NATIONAL U.S.A. QUALITY

Rubber Catalyzers Must Be Standardized

IN today's strongly competitive market it is more necessary than ever that manufacturing processes be refined and raw materials be selected with scrupulous care.

Particularly is this true of Intermediates used in rubber manufacture, in which any variation in strength or composition will measurably affect the quality of the finished products.

The National Aniline & Chemical Co., Inc., recognizing the far-reaching importance of uniformity in the strength and quality of Intermediates, has established standards for "National" products that users have come to recognize and depend upon.

These standards, considered in relation to the "National" price, create a value for these products which gives them marked leadership in this highly technical field.

And they go further than that. They reinforce the confidence of the manufacturer in the quality and merit of his own product and strengthen his position in the close competition as to price and quality that he must meet today.

The "National" has established a technical service for rubber manufacturers, and freely offers the facilities of its laboratories to users of "National" Intermediates.

Intermediates Division

National Aniline and Chemical Co., Inc.

21 Burling Slip New York

THE FIRST AND LARGEST MAKERS of COAL-TAR DYES IN AMERICA

NATIONAL U.S.A. DYES NATIONAL U.S.A. DYES

NATIONAL QUALITY

L. D. GARDNER
PRESIDENT

W. D. MOFFAT
VICE-PRESIDENT

THE RUBBER AGE

H. S. VORHIS
GENERAL MANAGER

W. I. SEAMAN
TREASURER

VOL. X DECEMBER 25, 1921 No. 6

Annual Banquet of the Rubber Trade Association of New York

THE crude rubber trade of New York came right out, almost to a man, to their second annual banquet at the Waldorf-Astoria on the evening of December 20, and had just as good a time as could be had at a banquet. The manufacturers were not present on this occasion, so that all thoughts of Spot Ribs and Up-river grades were cast to the four winds, and the only bids were for real Amber Latex, guaranteed equal to Standard Quality. There were plenty of takers.

The solidarity and real spirit of helpfulness and good fellowship that characterize this trade was never more evident than at this banquet, where in spite of the difficulties of the past year and a half the membership of 94 firms presented an unbroken front. As President Henderson pointed out in his opening address, every effort had been made to help members over hard places with a result that business troubles had been kept down to a minimum.

The Rubber Trade Association of New York, while organized in the fall of 1914, held its first annual dinner two years ago, which was so much of a success that it was decided to repeat it. This year the attendance increased to 200 guests, and the dinner now has every prospect of becoming one of the chief annual gatherings of the trade.

The guests assembled in the Myrtle Room of the Waldorf between 7 and 8 o'clock and were greeted by Mr. Henderson and the other officers of the Association. At the sound of the bugle they proceeded to the Astor Gallery adjoining and took their places at table, while the orchestra played "The Star Spangled Banner." After posing for a photographer, all joined in singing popular airs (some rare vintages of 1890 and 1904) under the guiding gesticulations of a cheer leader.

FRANCIS R. HENDERSON
President of the Rubber Trade Association of New York, Inc.

Food, plenty of it, of Oscar's and Louis' best Waldorf Estates grade, led up to the serious, semi-serious and humorous business of the evening.

When coffee had been served Toastmaster Henderson made announcement that Harry T. Dunn, president of the Rubber Association of America, who had been expected as the guest of honor of the evening, had telephoned at the last moment that his doctor had forbidden him to go out, as he was suffering from a severe cold.

Mr. Henderson as president of the Association then gave an interesting report on its activities.

"Organized in the fall of the year 1914," he said, " by 30 firms in the crude rubber trade we have steadily added to our numbers until at present we have a membership of 94 firms representing all branches of the crude rubber trade.

"I wish to call your particular attention to our Clearing Department, which was started in March, 1920, with Mr. Edward Maurer, our former president, as chairman of the Clearing Committee. This department has performed unusually valuable service to the trade, and great credit is to be given to Mr. Maurer for his loyal and energetic work on this very important committee. Mr. J. P. Sullivan, general manager of our Association, came to us from the Cotton Clearing House where he had become familiar with work of this nature and has managed our clearing department in an unusually skillful and intelligent manner so that everything goes along smoothly. In the 20 months of its existence there have been fully 7,000 clearings handled by this department without any losses to the trade. These clearings represent 100,000 tons of rubber, or almost half the total weight imported into this country.

"Another important feature of our work is that conducted by the Arbitration Committee. During the year there have been 284 arbitrative cases, only ten of which disputes arose during the present calendar year. The others were legacies from previous years, which fact speaks volumes for the present work of our organization. The entire trade should appreciate the work of both the Arbitration and Qualities Committees.

"It is unnecessary for me to rehearse to you the difficulties our trade has labored under during the past year. You all know them only too well, yet in spite of adverse conditions without a precedent there were only 18 to 20 failures in our trade. Only five of these resulted in court receiverships. The others were all handled by trade committees. Everything was done to save firms and traders who had shown that they were reputable members of the trade, and that is what we want to do in the future—to save those that should be saved and to promote a spirit of helpful cooperation.

"The Rules Committee was appointed to work in cooperation with the Crude Rubber Committee of the Rubber Associa-

WILLIAM H. STILES
Vice president of the Association and Chairman of the Banquet Committee

ness with us under our own rules. If the trade as a whole would cooperate with us in the accomplishment of this purpose, I believe we could soon demonstrate the soundness and efficiency of our organization for the equitable liquidation of contracts."

Mr. Henderson then introduced Congressman Walter M. Chandler from the 19th New York District (which includes Columbia University, we were informed) as the speaker of the evening. Mr. Chandler's address was replete with humor and eloquence, and covered about every subject under the sun, with special emphasis on some of the vital issues before Congress just now. He declared his opposition to Prohibition, which, he said, as a matter of fact did not exist. He told his hearers that the 18th Amendment would probably outlast this generation, but that Congress was the place to look for the repeal of the Volstead Act. He favored permitting beers and light wines, but seemed to think that 3 per cent alcoholic content was about as far as Congress would go.

He spoke eloquently in favor of broad religious toleration and excoriated those who were trying to influence Congress against the Jews and Catholics. He said that Catholics had been accused of being enemies of democratic institutions, whereas all but two of the 19 republics in the world were Catholic republics. The Jews as a race, he said, numbered more today than ever before in their long history, despite opposition and persecution. There would be Jews in the world, he thought, as long as there was anybody to do business with.

Edward Ford, the humorist, tall and lank, grave of visage and sardonic of utterance, kept his audience convulsed with laughter while he unwound a reel of jokes that contained some new ones.

He had no more than finished when William J. Kelly of Poel & Kelly, than whom no one has seen more assemblages of crude rubber and other rubber men, and whose remembrance of the trade goes away back and then some—Bill Kelly, the dean of the trade—was on his feet and gained the recognition of the toastmaster.

"I have attended many gatherings of rubber men," he said, "Rubber Club and Rubber Association banquets and outings and smoke talks and what not, ever since the old days over in Boston, and I have listened to many dry and unending after-dinner speeches, but this speaking tonight for up-to-date live stuff that gets us all is the best I have had the privilege of listening to. I wish to propose a rising vote of thanks to our speakers."

This motion was put, and the rising vote given, after which the band played "Home, Sweet Home," and the function was at an end.

Everyone agreed that Mr. Kelly had expressed the sentiments of the whole crowd that the event was one of the most entertaining from all points of view ever held in the trade, and no little credit, you may be sure, was given to the Banquet Committee of which William H. Stiles was Chairman and David Kubie and Russell W. Earle the other members.

Peter Carmichael of Carmichael & Co., the crude rubber brokers, of Singapore, was present as a guest of F. R. Henderson.

The entire list of those present follows.

Table No. 1.—Alfred G. McDonough, Seizaburo Yamanaka, Shotaro Hasegawa, Leo Barber, Alfred B. MacNamara, Edward Weber, Victor W. Fink.

Table No. 2.—R. M. Littlejohn, Joseph Louis, J. VanBemmel, J. Maack, P. S. Weeks, C. S. Clark, Ripley Ropes.

Table No. 3.—Paul Bertuch, Alex. Guttman, R. R. Kershaw, H. R. Sanford, D. A. Paterson, D. Moffatt, T. K. Evans, K. Wolfe, I. J. Louis.

Table No. 4.—R. B. Baird, C. W Baird, Wm. T. Baird, Jr., R. L. Baird, Hudson Miller, George McClair, Mr. Kracht.

Table No. 5.—Walter Bass, Wm. F. Mullen, J. T. Johnstone, E. F. Croeniger, L. P. MacMichael, T. A. Maguire, F. Pusinelli, W. J. Kelly, A. H. Brown.

Table No. 6.—F. E. Irsch, Gordon Milne, D. D. Haldane, W. B. Owen, H. A. Daggett, C. B. Kaufmann, C. Muller, J. Cochran.

Table No. 7.—Frank Zech, Paul Elbogen, L. L. Heyworth, Henry F. Tiedman, E. Janssen, W. R. Goldfrank, A. C. Spencer-Hess.

Table No. 8.—Robert Badenhop, H. W. Holcombe, Leroy Wood, Sloan Lamont, Jr., Leopold Spitz, Maurice Deschler, A. M. deWys.

Table No. 9.—T. A. Desmond, H. S. DeLanie, E. C. DeLanie, J. T. Robinson, V. C. Blandin of Akron, M. Rothschild, H. Hauff, G. B. Polak.

Table No. 10.—A. Manchester, W. H. Dickerson, Otto Meyer, H. H. Henderson, B. W. Henderson, Peter Carmichael of Singapore, H. J. Haigh, Joseph Rodenbough, H. T. Helm.

Table No. 11.—H. W. French, J. E. Lancaster, W. T. Easley, Kennedy Hassenzahl of Akron, W. R. Jefferds, G. H. Carnahan, H. Page, G. Biscaye.

Table No. 12.—D. S. Kubie, D. A. Mock, C. E. Erpf, J. M. Morris, Murray Millenthal, A. C. Fox, Chas. E. Humphreys, F. H. Peaty.

Table No. 14.—R. W. Earle, W.

The Menu

CAPE COD OYSTERS

CREAM OF ASPARAGUS, WITH TOASTIES

CELERY OLIVES

MEDAILLON OF SOLE, A LA JOINVILLE
Potatoes Parisienne, Rissolees

SWEETBREADS, MONTEBELLO STYLE
Green Peas Saute in Butter

BREAST OF CHICKEN, SAUCE CHASSEUR
Hearts of Lettuce, Russian Dressing

BOMBE OF CHESTNUT ICE CREAM

ASSORTED CAKES
MACAROONS LADY FINGERS
COFFEE

ROBERT L. CHIPMAN
Treasurer of the Association

The Second Annual Banquet of the Rubber Trade Association of New York, Inc.

Held in the Astor Gallery at the Waldorf-Astoria, New York, Tuesday Evening, December 20, 1921

Two hundred members of the Crude Rubber Trade of New York gathered at the Waldorf-Astoria for their second annual dinner, enjoyed an occasion that will go down in trade annals as one of the Best Ever. No less an authority than William J. Kelly, the Dean of the Trade, came right out and said it was the BEST, and he has attended 'em all from the first Rubber Club outing held over in Boston more than 20 years ago. Congressman Chandler's ringing address on national topics was cheered to the echo and Edward Ford's humorous sallies put everyone in the best of humor. Altogether it was a function that reflected great credit on those who arranged it.

Those at the Speakers' Table from Left to Right: Robert L. Chipman, rubber broker, treasurer of the Association, William T. Baird, president of the Baird Rubber & Trading Co., New York, and former president of the Association, Edward Ford, humorist, William E. Bruyn, treasurer of L. Littlejohn & Co., New York, and former president of the Association, Congressman Walter M. Chandler, 19th District, New York, Francis R. Henderson, Toastmaster and president of the Association, of F. R. Henderson & Co., New York, A. L. Viles, General Manager of the Rubber Association of America, New York, William H. Stiles, vice president of the Association and Chairman of the Banquet Committee, of William H. Stiles & Co., New York, Edward Maurer, former president of the Association and president of the Edward Maurer Co., H. A. Astlett of H. A. Astlett & Co., New York, secretary of the Association.

P. Earle, Jr., E. W. Laird, G. M. Beers, O. G. Saxon, A. Gjessing, A. Bjerrehuss, Eugen Boissevain.

Table No. 15.—Henry Perlish, L. M. Trafford, S. Swerling, H. Muehlstein, J. Muehlstein, W. J. McCauley, Leon L. Eis, Chas. E. Wood, F. Lester Kittle.

Table No. 16.—N. Diamond, R. H. Toeplitz, S. Schafer, David Meyer, L. R. Bachner, I. Witkin, F. A. Havey, H. Joosten, H. Lohse.

Table No. 17.—C. F. McPhillips, Frank W. Lovatt, Wm. Liddell, Jr., F. L. Byrne, Ralph Croft, H. S. Vorhis.

Table No. 18.—J. C. Baldwin, S. H. Sears, A. Ernst, J. P. Sullivan, A. C. Forney, Jesse Long, C. W. Walters, H. S. Bickford.

Table No. 19.—J. A. Swett, C. Schaal, R. S. Hamilton, Wm. C. Meyer, F. B. Hosier, N. Laudati, W. Froehlich, Bernard K. Schaefer.

Table No. 20.—G. E. Pell, L. W. Dumont, P. A. Murphy, Harry Klopsch, Wm. Walz, G. E. Habich, C. R. Heaume, F. B. Ross, Thomas A. Phelan, John H. Borland.

Table No. 21.—C. A. Morse, W. R. Winans, Glenn Saxon, P. V. Bouton, F. Arnold, J. A. Milholland, Arthur Weber, John C. Sigling, A. Stauffer

Table No. 22.—E. C. Sweeney, Jr., Chas. L. Teezan, George R. Sweeney, Chas. W. Sweeney, George W. Sniffin, E. J. Wentz, E. P. Willcox, K. Okuno.

Table No. 23.—J. Frank Dunbar, J. F. Dunbar, Jr., W. C. Murphy, B. E. VanRiper, J. J. Jones, F. W. Dunbar, M. J. Carballeira, H. L. Machado.

Annual Meeting and Election of Officers

THE annual meeting of the Rubber Trade Association of New York, Inc. was held at the Association offices, 75 Maiden Lane, on November 3 and the following officers and directors elected for the ensuing year:

President, Francis R. Henderson, of F. R. Henderson & Co.

Vice President, William H. Stiles of William H. Stiles & Co.

Treasurer, Robert L. Chipman.

Secretary, H. A. Astlett of H. A. Astlett & Co.

DIRECTORS

TERMS EXPIRE 1922

Edward Maurer, president of the Ed. Maurer Co., William E. Bruyn, treasurer of L. Littlejohn & Co., Inc., F. R. Henderson and William H. Stiles.

Terms Expire 1923

J. T. Johnstone of J. T. Johnstone & Co., H. A. Astlett of H. A. Astlett & Co., D. A. Paterson of Balfour, Williamson & Co.

Terms Expire 1924

William T. Baird, president of the Baird Rubber & Trading Co., R. L. Chipman, Otto Meyer, president of Meyer & Brown, Inc. and F. Pusinelli, treasurer of Poel & Kelly, Inc.

Mr. Henderson's election as president was for a second term. He was elected the fourth president of the Association at the annual meeting of 1920. The other presidents were William E. Bruyn, Edward Maurer and William T. Baird.

Standing Committees

Standing Committees were appointed for the ensuing year as follows:

Arbitration Committee.—Charles T. Wilson, president of the Charles T. Wilson Co., Chairman; K. Wolff of the Vernon Metals Co., C. A. Morse of Morse & Winans, William T. Baird, president of the Baird Rubber & Trading Co., Walter H. Dickerson, Secretary of Meyer & Brown, Inc., L. D. Stiles of William H. Stiles & Co., W. R. Velthaus of B. S. Ellis and Paul Bertuch.

Qualities Committee.—Edward Maurer, Chairman, A. V. W. Tallman, F. H. Peaty of H. A. Astlett & Co., C. W. Baird of the Baird Rubber & Trading Co., and D. Haldane of J. T. Johnstone & Co.

Membership Committee.—L. P. MacMichael, Chairman, Arthur W. Stedman and William J. Kelly.

The Rules and By-Laws of the Association are undergoing a thorough revision, and will be given out to the trade, it is expected, in a month or so.

To Continue Restriction of Crude Rubber Production

The Rubber Growers' Association of London has issued the following circular letter under date of November 29 to all producers of plantation rubber asking them to continue the restriction of rubber production during the first six months of 1922:

"Notwithstanding the restriction of Rubber production (both voluntary and involuntary) which has been effected during the past twelve months, reducing the output to about two-thirds of normal, the Plantation Rubber Industry is still confronted with the fact that the consumption of Rubber throughout the world is not proceeding at a rate which would justify a resumption of normal production. In the past few weeks there has been a small but welcome rise in the price of the commodity, due primarily to the restriction referred to, but the stocks in warehouse in London on the 19 November 1921, were 70,259 tons, against 45,550 tons on 30 November, 1920, and are only 3,000 tons less than the highest figure recorded during the year.

"If a full crop were produced during the next twelve months, and if consumption continues only at the rate which it has averaged during the last three years, it is estimated that the surplus of Rubber would be largely increased, with most disastrous results.

"In these circumstances, the Council of this Association strongly urge all producers who assented to the previous voluntary restriction scheme, which would otherwise terminate on 31 December next, to continue restriction by undertakng not to produce more Rubber during the first six months of 1922 than they produced during the corresponding period of 1921, or alternatively than 75 per cent of their output during the corresponding period of 1920.

"Producers who did not join the previous scheme are urged to undertake during the first six months of 1922 to restrict their output of Rubber by 25 per cent of the amount produced during the corresponding period of 1921, or alternatively of 1920.

"A Form of Assent is enclosed, which should be returned to the Association in the accompanying envelope at the earliest possible date.

"This assent shall cease to be binding unless prior to the 31 December, 1921, assentors have been notified in writing that the Council are satisfied that Members owning or controlling not less than 70 per cent of the producing area represented by the Members of the Association have similarly agreed."

Askel: A New Accelerator

The accelerator, which has recently been put out on the market in France under that name, is said to be the most powerful accelerant of vulcanization known at the present time. The substance is a dithiocarbonic compound. In a mixture of crude rubber and zinc oxide, containing about 4 per cent of sulphur, its activity is about 25 times greater than that of thiocarbanilide and about five times greater than that of hexamethylene tetramine. The compound is non-toxic and posseses an open carbon chain, which is of considerable aid in vulcanizing inferior grades of recovered rubber. It can replace litharge to advantage. It may be used with litharge, lime or magnesia, but not with antimony sulphide. It is active in the vulcanization process when the latter is conducted at room temperatures.

Recent Developments in the Art of Rubber Microsectioning

By Henry Green

New Jersey Zinc Co., Palmerton, Pa.

There has lately appeared an article by Messrs. Depew and Ruby in which the authors point out the desirability of studying the nature and dispersion of compounded pigments in rubber microsections.

Their method of preparing the sample for sectioning, by freezing with carbon dioxide and liquid air, entails certain disadvantages which are difficult or quite impossible to overcome. Chief among these are the annoyances encountered in obtaining, transporting, and keeping liquid air. In addition, the method usually necessitates the use of large amounts of carbon dioxide, before a satisfactory section can be secured. The main drawback is met in the comparatively high temperature of the knife. As the blade passes over the specimen, the heat it (the blade) contains is partly transferred to the frozen rubber causing it to thaw, with a consequent change in volume, thus making it impossible to regulate the thickness of section. This fact is particularly objectionable when it is desired to obtain the thin sections required for the examination of rubber containing high percentages of gas black. Briefly, the method fails economically, both in respect to expense and time.

After stating the objections to the freezing method it would hardly be fair to omit emphasizing its chief virtue, i.e., the fact that the specimen is not chemically prepared, and therefore a possibility of destroying the rubber structure or influencing the dispersion of the pigment is eliminated. For this reason, alone, it is not desirable to abandon entirely the idea of employing the freezing method at times.

The New Method

This method is purely a chemical one. The elasticity of the rubber is destroyed and a proper rigidity acquired by revulcanization with a very dilute carbon tetrachloride solution of sulphur chloride.

It is essential that the specimen be of proper size and shape for sectioning. From a block of the rubber to be examined,

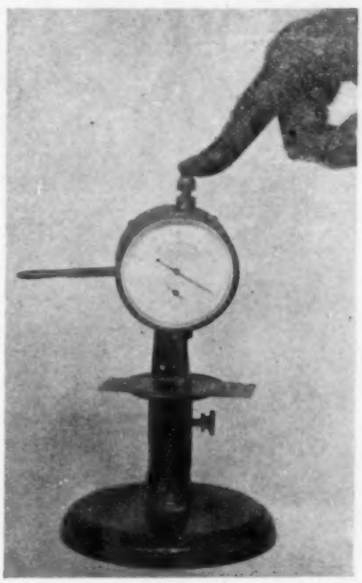


FIGURE 2

(*a*, Fig. 1) either a rectangular or wedge-shaped corner is cut (*b* and *c*), approximately 0.5 × 4 × 20 mm. in size. This piece is placed in the vulcanizing solution (the strength of which is discussed below) and treated for a length of time that will vary according to the nature of the rubber, thickness of the section, and, of course, the concentration of the solution. At stated intervals, the specimen is removed and examined by slicing off a small portion of the end and testing the hardness with a needle point.

The ability to recognize the proper degree of hardness is easily acquired with practice; to attempt to describe it is difficult. As a rule there should be no indication of elastic recovery where the rubber has been scratched or depressed. Above all there should be no soft unvulcanized core, as shown at *d*. On the other hand, the specimen must not be so hard that it cracks and crumbles upon cutting, but rather it should slice as easily as a piece of soft wood in the direction of grain.

Assuming that the specimen is correctly vulcanized, the next step is to allow it to become thoroughly dry (preferably by vacuum treatment) and then to sharpen it at one end, as at *e*, simply for convenience in inserting it in the paraffin mounting block. This block, *f*, is rectangular in shape and roughly 15 × 15 × 30 mm. It is clamped in a vise and a hot nail or other convenient instrument pushed into its upper end to a depth of about 18 mm., to produce a cavity in which the specimen is placed. The pointed end *e* must be pressed

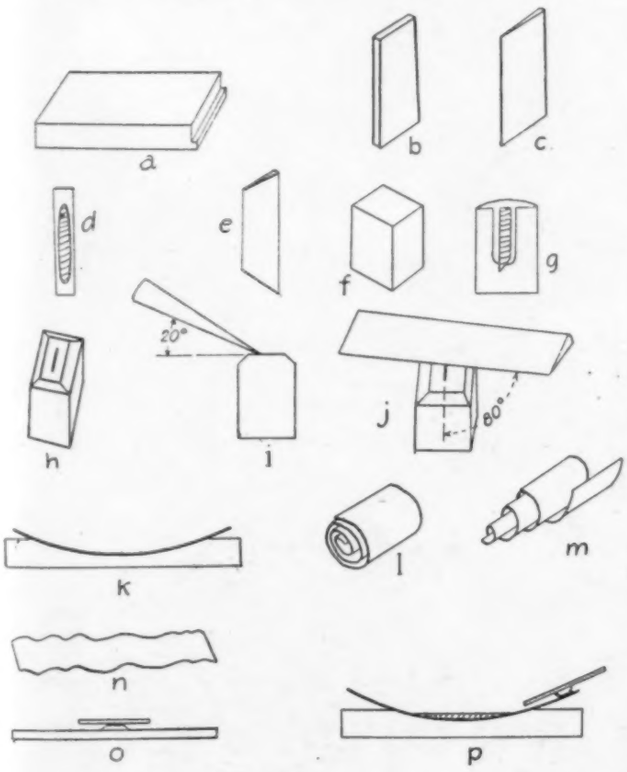


FIGURE 1

Presented before the Division of Rubber Chemistry at the 62nd Meeting of the American Chemical Society, New York, N. Y., September 6 to 10, 1921; Reproduced from the Journal of Industrial and Engineering Chemistry, December, 1921.

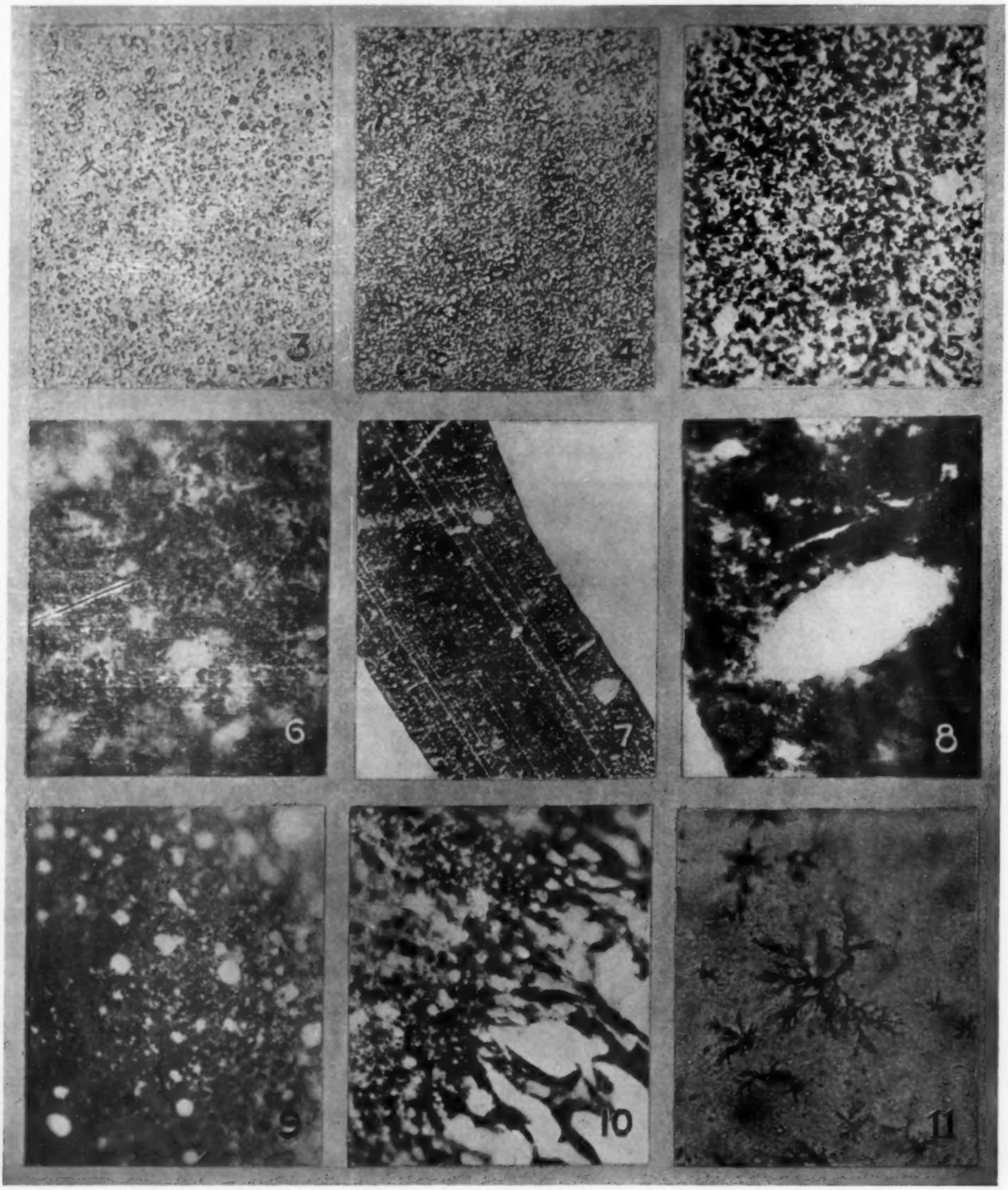
"Some Microsections Cut from Vulcanized Rubber Articles," Journal of Industrial and Engineering Chemistry, December, 1920.

firmly into the paraffin and the face of the block covered with a few drops of melted paraffin (Fig. 1, *g*). After cooling the block is trimmed as shown at *h*. It is then ready to be sectioned.

The knife must be of the flat-faced type and make a vertical angle with the specimen of about 20 deg. and a horizontal angle of approximately 80 deg. (Fig. 1, *i* and *j*). Not less than ten sections should be cut at a time. They will adhere to form a ribbon which is easily removed to a watch glass, *k*. A small hand glass is employed to count the number of sections imbedded in the ribbon in order to note whether the microtome has "skipped" or not. In case it has, it is then impossible to ascertain the thickness of the section from the microtome setting.

The paraffin adhering to the microsection is now removed with a few cc. of toluene. The specimens, upon examination, will be found to be curled either in the manner shown at *l* or at *m*. If the former is the case, they will be difficult to uncurl and the horizontal angle of the knife must be made more acute so as to prevent this form of curling. Next the sections are removed from the toluene by sliding them up to the edge of the glass with the aid of the needle.

If the sections are thick (3-5μ) they will probably become detached from the glass upon drying and are easily transferred



to the microscope slide. The mounting medium is piperine (never Canada balsam).[1] A few small crystal fragments of this material are placed on the slide and warmed till melted. Upon cooling, piperine will remain plastic and sticky for some time. While in this condition, the section is placed on its surface and covered with a glass (Fig. 1, *n*). Upon alternately warming and pressing on the cover glass the excess of piperine is gradually squeezed out.

The specimen is next examined with a low power microscope. If it is found to be badly wrinkled, as shown at *o*, or to contain objectionable air bubbles, the slide is transferred to a hot plate and heated for a minute or so till the piperine is quite fluid. While in this state it is necessary to apply a comparatively high pressure in order to remove the air bubbles and at the same time to flatten the section as much as possible. The author has found a thickness gage convenient for this purpose. The slide is placed on the stage and pressure applied with the finger on the upper end of the plunger (Fig. 2). After cooling, the mount is ready to be labeled and examined.

If the section is quite thin (0.5-1.5μ) it will not become detached from the watch glass upon drying. In such a case it is sometimes possible to detach it with the needle point. If this fails it is necessary to resort to the following method: First melt the piperine on the microscope cover glass, instead of the slide. Invert it so that the drop will hang downward. Upon solidification press the drop against the section, as shown at *p*, Fig. 1. The specimen may become slightly damaged by this process but it will adhere to the piperine and can now be mounted by the method previously described.

Reference has been made to the strength of the vulcanizing solution. This will vary with the kind of rubber to be treated. A zinc oxide tread, for instance, can be sufficiently prepared in 5 to 10 min. in a carbon bisulphide (N.B., not carbon tetrachloride) solution which contains just enough SCl to impart to it an easily discernible yellow tint, perhaps several drops in 50 cc. of solution. If this is found to be too weak the strength may be increased or the specimen sliced thinner. The best concentration is in all cases quickly and easily found by trial.

In preparing rubber which is compounded with gas black, the solution should be made with CCl_4, as otherwise brittleness is liable to ensue. Carbon tetrachloride solution acts much more slowly and consequently should be made stronger —15 drops to 50 cc. In some cases it is necessary to allow treatment to continue from 1 to 3 hrs. before the specimen is hardened completely. Any number of samples, however, can be prepared together so that the time lost is not a serious factor.

Some Results Obtained with the SCl Method

A rubber microsection made as described will be approximately 0.5 × 4.0 mm. in area. On account of the minute size of the compounded pigment particles it has been found most convenient to employ for examination a magnification of at least 1500 diameters.

While a microsection of this size may seem rather small to show all the characteristics that a particular rubber sample possesses, in reality it will be found amply large enough. If the field of the microscope were so extended that it could give a single view of the entire section it would appear (at 1500 diam.) to be a strip, in round numbers, 3 ft. by 20 ft. in area.

Sections prepared by the sulphur chloride method possess beautiful transparency and uniformity in thickness. They are practically ideal for visual examination where it is always possible, by varying the fine adjustment, to bring any part of the mount (and at any depth) into focus, hence the slight lack of flatness, which these sections often have, is not objectionable.

A section which is not perfectly flat is a difficult one to handle from a photomicrographic viewpoint; however, most specimens contain areas that are sufficiently free from this defect so as to enable one to obtain fairly satisfactory photomicrographs.

Fig. 3 is a zinc oxide tread. No difficulty is experienced in obtaining good sections of rubber compounded with normal amounts of this material. On account of its transparency these sections may be cut quite thick (3-5μ).

Fig. 4 is a specially prepared sample containing 100 volumes of rubber to 100 volumes of zinc oxide. Even with this high percentage of oxide the pigment particles are uniformly distributed, showing absence of aggregation. The section was not difficult to make.

No photomicrograph can do justice to the sections presented in Figs. 5 and 6. The former shows lampblack, always existing in rubber flocculated into small groups with clear water-white spaces between. The individual particles are not discernible as they are never found dispersed. A great deal of the detail in this section cannot be seen in the photomicrograph. Fig. 6 is rubber compounded with gas black. This black is found much better distributed than the former, though one inexperienced in work of this nature might easily infer otherwise from a comparison of the photomicrographs. Here again (in Fig. 6) much of the detail observable with visual examination is lost in the attempt to reproduce it photomicrographically. As a matter of fact, a more difficult subject than rubber containing normal amounts of gas black cannot be found in the entire field of photomicroscopy. There is no difficulty whatever in readily distinguishing between a rubber compounded with lampblack and another containing gas black, upon microscopic examination.

Fig. 7 shows a tread containing gas black and clay. The magnification is but 67.5 diameters. The clay is best examined between crossed nicols where it shows extinction and interference colors. Fig. 8 is the same sample magnified 1500 diameters in order to observe the gas black, individual particles of which can be seen along the edge of the clay particle.

Frequently, rubber compounded with gas black will be found to contain innumerable pocket-like spaces absolutely devoid of pigment particles. Fig. 9 shows a section of this kind. So far it has been impossible to determine whether these spaces are empty or contain a substance which the gas black particles are unable to penetrate. Fig. 10 is a rough torn edge of a similar section showing a sponge-like structure, due to these pockets.

Growth of crystalline substance in rubber is an interesting procedure to study. Fig. 11 is a section containing crystallized para toner. This substance is first dissolved in melted paraffin in which the rubber is soaked before sectioning. The sample was not treated with sulphur dioxide, no pigment being present to interfere with the transparency, hence a thick section (100-200μ) could be used. The paraffin itself will produce sufficient rigidity to make possible the cutting of these abnormally thick sections.

The microsection was next washed with toluene to remove the paraffin and then dried and mounted in glycerol. If such a mount is examined immediately it will be found that the para toner has crystallized and if the process of crystallization is to be studied, solution must first be obtained by warming the slide. The rubber will act as a liquid solvent and cause complete solution of the toner. When recrystallization commences it can be studied microscopically, using a low power objective. The material sends out branches apparently with perfect freedom just as though it were suspended in a liquid medium instead of a solid one.

In conclusion the author wishes to state that he has constantly borne in mind, while preparing rubber microsections by the sulphur chloride method, that the rubber is given a chemical treatment that might possibly produce effects not present in the untreated original specimen. In order to ascertain if undesirable alterations had appeared it was necessary to make comparisons with specimens prepared by the freezing method. Wherever it was possible to do this the results given by the two methods were found to be identical.

Acknowedgement

The author wishes to acknowledge his indebtedness to Mr. Howard M. Cyr for valuable aid received from him during the preparation of this paper.

New Uses for Rubber

Text of the Award of the Judges in the Competition Originated by the Rubber Growers Association

THE Rubber Growers' Association, Inc., of London has announced the awards in the competition for suggestions and ideas for new uses for crude rubber, this competition having taken place during the last half of 1920. 10,000 suggestions were submitted by 2,2000 persons from all over the world.

In July, 1920, the Rubber Growers' Association offered the following Awards for ideas and suggestions for extending the present uses or for encouraging new uses of rubber:—

> One prize of £1,000, three prizes of £500 each, ten prizes of £100 each, and a sum not exceeding £1,500 to be divided among the remaining competitors whose suggestions were considered to be of value, according to the relative value of their suggestions, but so that no competitor would receive more than £100.

The competition was advertised in the press throughout the world and with the cooperation of rubber producing companies the competition was brought to the notice of thousands of shareholders and others. 63,500 copies of the circular giving details of the conditions governing the competition were distributed.

The rules of the competition required that every entry should bear a nom-de-plume or number, and that suggestions should be accompanied by a sealed envelope bearing outside the nom-de-plume or number and containing the name and address of the competitor. These sealed envelopes were retained by the chartered accountants who, before forwarding entries to the adjudicators, removed all particulars which might lead to the disclosure of any competitor's identity. Each entry as received by the chartered accountants was given a serial number and these are the numbers referred to in the Adjudicators' Award. It will be appreciated therefore that neither the adjudicators nor the association were aware of the identity of any competitor until the award was completed. In addition, no member either of the council or of the association had access to any of the entries, which remained entirely under the control of the adjudicators.

The following gentlemen kindly consented to act as adjudicators:

> Alexander Johnston, Managing Director of the North British Rubber Co., Ltd., Castle Mills, Edinburgh, and Chairman of the Research Association of British Rubber and Tyre Manufacturers.
>
> H. J. Glascodine, Head of the Technical & Patents Department of George Spencer Moulton & Co., Ltd., and Wood Milne Ltd.
>
> Thomas H. How, Chairman of the Engineering Section of the London Chamber of Commerce.
>
> H. L. Symonds, (S. Morden & Co., Ltd., Manufacturing), Deputy Chairman of the Court of the London Chamber of Commerce and ex-Chairman of the Manufacturers' Section.
>
> Lancelot C. Bullock, Markby Stewart & Co., Solicitors.

The adjudicators commenced their activities shortly after the close of the competition, and it will be seen from the award that their task has not been a light one. The council of the Rubber Growers' Association desire to place on record their appreciation of the valuable help and assistance rendered by the adjudicators. It was not realized at the commencement what a protracted and difficult task was in store, and the panel of adjudicators are to be congratulated, not only upon their success in contending with the many and varied difficulties arising out of the conditions of the competition, and the nature and number of suggestions received, but also upon the excellent manner in which the award is framed.

The publication of the results has been unavoidably delayed owing to the fact that a large amount of experimental work was necessary in order to determine the practicability or otherwise of many of the suggestions sent in. After the adjudicators had made their provisional award, a search had to be made in order to ascertain whether any of the suggestions mentioned in the award were subjects of patents. This was duly carried out by a firm of patent agents and subsequently counsel's opinion had to be obtained on several points. While regretting the delay involved, the council of the Associations are of the opinion that the above action was necessary in the interests of all concerned.

With regard to the publication of the suggestions, the association propose to issue a preliminary pamphlet to all manufacturers immediately, supplementing this later with further detailed pamphlets as the work of classification and elimination progresses.

The judges in their award state:—

In the first place, it must be frankly admitted that the results of the competition are extremely disappointing; out of an entry numbering nearly 2,000 competitors, it has been impossible to find any suggestion which, in the opinion of the judges, merited a substantial award, and had it been in their power to do so, the adjudicators would have withheld the principal prizes.

The axiom that there is "nothing new under the sun" has been increasingly borne in upon the adjudicators as they day by day examined the entries. It is instructive here to mention that Goodyear, the discoverer of vulcanization, in his work, "Goodyear on Gum Elastic," published in 1855, gives an exhaustive list of possible uses for rubber, and apart from uses arising from modern developments, there is hardly an idea suggested in this competition which was not anticipated by him.

The judges speedily came to the conclusion that if absolute novelty was to be the criterion, they would be left with hardly anything to adjudicate upon, and that the suggestions coming under this head would mostly be impracticable, far-fetched, or difficult to exploit.

In searching for the possible winning suggestions apart from the question of novelty, the judges considered that the following factors were those to which they had to give chief importance:—

(1) *Weight of Rubber Consumption Involved.*—This was regarded as the factor of greatest importance, and consequently suggestions, which, while ingenious or semi-novel, involve the consumption of a comparatively small weight of rubber only, were regarded as ineligible for the principal prizes.

(2) *Practicability in Relation to Manufacturing Resources.* This was a point to which the technical members of the panel attached great importance, pointing out that suggestions which would only mean a further strain on the already overtaxed machinery of the trade, such as mixers, calenders, vulcanizers, etc., would be of little immediate value, and that the ideal suggestion would be one in which rubber could be used in larger quantities without going through all the usual machinery processes.

(3) *Practicability from the Point of View of Cost.*—This point was particularly interesting. In the course of the examination of the entries and the discussions which ensued, it became obvious that many suggestions which were by no means novel, and had been tried in the past and dropped on the score of cost, would become quite practicable under present rubber price conditions. The judges eventually came to the conclusion that the interests of the industry as a whole would probably best be served by some new use, which, while absorbing large quantities of rubber when the price dropped below the normal, would automatically fall out when the price went above a certain point. Such a use would be of great value as an automatic compensator of the market price. Unfortunately it was difficult to find suggestions of this nature, and some from which most was hoped were found impossible to reproduce on test. Under this class came the suggestion to mix a percentage of rubber with cement for a non-cracking and weatherproof flooring and wall covering material, and many road-making proposals.

(4) *Ease of exploitation.*—This was another point to which great attention was given. Many suggestions would have involved any one adapting them in a tremendous advertising and exploitation campaign, which would have prejudiced the proposal from the start.

The difficulties of examination of the entries were great. In the first instance, none of the entries were disregarded, even though they had clearly not complied with the conditions of the competition, as it was felt that every suggestion should be examined. The chief difficulty met with was the large number of "omnibus" suggestions. Many competitors had apparently looked round the room and noted the various articles in it, and then given a list with the suggestion that they should all be made of rubber. This class of competitor luckily did not attempt to explain how it was to be done.

It was, however, felt to be necessary to index these suggestions under the appropriate heading in case an award was given in respect to the idea. This involved a huge amount of work on the Association's officials, as many entries contained lists of hundreds of articles.

At a later stage, when it was found that awards given for a meritorious entry containing a suggestion with a reasoned explanation and technical details would probably be shared in by a number of competitors who had just mentioned the articles in a list, the judges came to the conclusion that they would have to proceed strictly under their powers and disqualify all competitors who had not reasonably complied with the conditions of the competition.

In this connection, it is instructive to point out that fully 1,000 competitors made the suggestion of rubber flooring, paving or roadways, but that not one was able to give a really practicable suggestion of an efficient and tried method of laying the two last named. An ingenious suggestion of interlocking blocks made by one competitor was felt to be impracticable owing to its excessive cost.

Some of the most promising suggestions could not be accepted as feasible without practical tests, and consequently the technical members of the committee had these tested in their laboratories, and the competitors were in certain cases asked (through the chartered accountants) for further details of the methods used by them to obtain their results.

A great many of the competitors appeared to be totally ignorant of the physical qualities of rubber, or the manufacturing methods employed. A large number appeared to be under the impression that rubber was melted and poured into moulds and that it would equally be reduced to liquid form by warming it.

It was noticeable that a great many competitors appeared to be impressed by the possibilities of hard rubber or vulcanite. Suggestions for making all classes of furniture, coffins, and even completely moulded boats, were received galore. It is unfortunate that the technical difficulties attendant upon the production of vulcanite in any considerable thickness, the lengthy period of vulcanization necessary, and the physical disadvantages of the material, render useless most of the suggestions in this class, many of which were very ingenious.

After careful consideration, the judges came to the conclusion that the use of sponge rubber for upholstering purposes was the suggestion with the most merit about it, although as it was referred to by Goodyear in his work in 1855, it can scarcely be considered novel. There have recently been very considerable technical developments in the manufacture of rubber in the sponge form, and in our view there is a very great field for the utilization of this material for upholstering of furniture, public service vehicles, and other purposes of general utility.

The judges came to the conclusion in construing the conditions of the competition, that all entries which made a suggestion to which a prize had been awarded were entitled to share in it provided they had conformed to the conditions regarding the particulars to be furnished. This has had the effect of dividing up the prizes among a number of competitors in nearly every instance. It has also produced the apparently anomalous result that in some cases competitors who made a suggestion which the judges regarded as of less value find themselves the recipients of a money prize actually larger than that awarded to competitors whose suggestion was regarded as of greater value. The judges would have desired to avoid this result, but as the conditions of entry attach the prizes to the idea or suggestion, they found it impossible to do so. The successful competitors therefore, in whose suggestion there were few participators, must look upon themselves as indebted to the originality of their outlook rather than to the intrinsic merit of their suggestion.

The judges have awarded a certain portion of the sum which in their discretion they were entitled to award as consolation prizes, but they do not feel that the entries are sufficiently good to justify their distribution of the whole sum.

In this connection they awarded a certain number of consolation prizes to suggestions for increase in the uses of rubber by propaganda and exploitation. The judges did not feel that these were strictly speaking entitled to rank for the major prizes, but at the same time some of these were of undoubted merit.

While the suggestions contained in the entries on the whole were disappointing, there is no doubt that many of them contain the germ of ideas which, in the hands of a technical and practical man, might be worked up into a manufacturing possibility. The judges therefore recommend that the entries should be edited by some competent person acquainted with the trade, and that a handbook should be produced giving in condensed form particulars of those ideas which are considered of merit; this to be circulated to all manufacturers throughout the world.

The Awards

The following prizes are awarded:—

A prize of £1,000 for the suggestion of using sponge rubber for general upholstery purposes, including the making of mattresses, divisible among 114 competitors.

A prize of £500 for the suggestion of incorporating rubber in liquid form with paint or other composition for use in the preservation of wood and metals against the action of the sea and in prevention of the fouling of ship's keels, divisible among five competitors.

A prize of £500 for the suggestion of the use of rubber in paint for general decorative and preservative purposes, divisible among nine competitors.

A prize of £500 for the suggestion of the use of rubber for the vallances and mudguards of motor vehicles, divisible among eight competitors.

Ten prizes of £100 each for the 10 suggestions stated below:—

(1) The incorporation of rubber with cement for building purposes, divisible among two competitors.

(2) For the use of rubber as a heat-retaining covering for hot water cisterns.

(3) For the use of rubber for the construction of sea buoys, divisible among four competitors.

(4) For the use of rubber for the lining of egg boxes, divisible among three competitors.

(5) For the use of rubber in the construction of ship and wharf fenders, divisible among 32 competitors.

(6) For the use of rubber for washstand tops, divisible among 18 competitors.

(7) For the manufacture of soft rubber buttons, divisible among 31 competitors.

(8) For the use of rubber under carpets in place of underfelts or felt paper, divisible among 35 competitors.

(9) For the use of rubber channelling in place of putty for fixing glass in windows, divisible among three competitors.

(10) For the use of rubber for moulded blind acorns and cistern chain handles, divisible among eight competitors.

Consolation prizes are awarded as follows:—

£100 for suggestions for propaganda to increase the use of rubber goods.

£20 for suggestion for propaganda.

£5 for suggestion for propaganda.

£10 for the suggestion of using rubber for the lining and divisions of bottle packing cases, divisible among two competitors.

£35 for the suggestion of making rubber clothes pegs, divisible among seven competitors.

£20 for the suggestion of using rubber as fillet for pattern makers, divisible among four competitors.

£20 for the suggestion of using rubber caps for the ends of ladders for the prevention of slipping, divisible among six competitors.

£15 for the suggestion of using rubber for pneumatic bouncers attached to footwear for aiding pedestrians and for purposes of sport, divisible among two competitors.

£10 for the suggestion of using rubber for arctic and antarctic equipment, requisites and purposes.

£25 for the suggestion of rubber linings for preservation of bleaching vats.

£15 for the suggestion of using rubber in the manufacture of bellows, particularly for foundry purposes; divisible among two competitors.

£50 for the suggestion of using rubber as slip-on jar and bottle covers, divisible among 10 competitors.

£15 for the suggestion for the use of rubber in the crepe form for rough surfacing cement.

£15 for the suggestion of rubber covers for door handles, divisible among three competitors.

£10 for the suggestion of using rubber for gramophone table tops.

£10 for the suggestion of using rubber knee-caps for colliers.

£25 for the suggestion of using rubber in the composition of certain lubricants.

£10 for the suggestion of rubber water deflectors for the handles of mops and brooms.

(Signed) L. C. Bullock (chairman),
Thomas H. How, M.I.Mech. E., F.C.I.S.
Richard T. Glascodine,
H. L. Symonds,
Alexander Johnston.

Under the terms of the competition it is established that the decision of the judge or judges shall be final and binding upon all competitors.

Correspondence relating specifically to the award cannot be entered into.

Use of Rubber as Fuel

An interesting report was recently prepared by a company representing certain Java estates, on the use of rubber as fuel. The company states that in compliance with restriction of output proposals, orders were issued for rubber harvested in excess of the agreed maximum to be be burnt, and an enterprising engineer in the company's employ disposed of the surplus rubber by using it with great success in locomotive boilers instead of firewood. Some rearrangements were made in the boilers, and experiments were made with first-class rubber, low grades, browns, wet rubber, bark scrap, and, finally, earth and scrapings gathered from the gardens under the trees. The total results were that the necessity of buying firewood was absolutely eliminated. Comparisons were made between coal, rubber and oil as fuel. These initial trials proved beyond a doubt that rubber had a very fierce burning power, and that its calorific forces were enormous. It was discovered that if it was not fired in very small quantities, there was imminent danger of buckling the crown sheets. Again, if too much rubber was put in, it ran through the fire bars.

The general opinion was that it was better to use bark shavings, and that these alone were sufficient to give all the steam that was necessary.

Further trials were made in turning the rubber into gas. Other attempts were made to mix the wet rubber or tacky scrap with dry straw, and the results were even more satisfactory. In any case, the results so far obtained were sufficient to indicate that there would appear to be in Java a ready market with the sugar mills for generating steam when they begin their campaigns. Railway locomotives can be most successfully run by rubber fuel, and that scrap rubber in any shape and hydraulically pressed into 4 lb. blocks, can be easily handled, and generates steam very quickly, owing to the abnormal calorific powers.

On estates in Java, experiments are being carried out, and also on the railways, and the company states that it is endeavoring to get launches in the coast ports to make trials, and that the United Engineers in Singapore had also been asked to begin experiments. The matter was submitted to the Research Committtee of the Rubber Growers' Association of London for further investigation, and the consulting chemist, Dr. Henry P. Stevens, was asked to prepare a report. Dr. Stevens stated that both for scientific and technical purposes considerable importance was attached to the amount of heat produced when a definite weight of substance is burnt, and that the literature contained large number of determinations, both of chemically pure substances and of commercial substances, such as coal and oil. Although there appears to be no published data giving the heat of combustion of raw rubber it is, nevertheless, possible to arrive at a fairly approximate estimation from a knowledge of the composition. The heat produced when a substance burns is the sum of heats produced by the burning of its constituent elements less a relatively small figure known as the heat of formation. Hence, in the majority of substances the heat produced by burning a substance, or "heat of combustion," is something less than the heat produced by burning the constituents separately. There are a few exceptions in which the heat of combustion is greater than the heat produced by burning the constituents, but even in these cases the heat of combustion does not much exceed the heat of combustion of its elements. In the vast majority of cases, of which rubber is probably one, the heat of combustion will be somewhat less than heat of combustion of its elements.

Adopting metrical units the heat of combustion of the terpenes (the main constituents of turpentine), which contain carbon and hydrogen in the same proportion as rubber, is approximately 10,800 units. It is probable that the heat of combustion of rubber will be a very similar figure. For the purpose of comparison Dr. Stevens gives the heats of combustion of a few well-known substances:—

Wood, 4,500 calories.
Coal, 6,000 to 8,000 calories.
Petroleum, 10,300 calories.
Solid paraffin, 11,200 calories.

The highest figure given by an organic compound is that for the gas methane, namely, 13,200 calories.

If Dr. Stevens's conclusions are correct, which he believes to be the case, it will be seen that rubber, when burnt, will give out a similar amount of heat to petroleum.

A distinction must be drawn between the total amount of heat given out by a burning substance and the temperature to which the burning mass becomes heated. If two substances give out the same amount of heat, but one burns faster than the other, the temperature produced by the faster burning substance will be higher, and it will burn more fiercely, as the heat will be given out for a shorter period. But the total amount of heat produced will be the same in both cases. Therefore, the fact noted that rubber burns fiercely is not necessarily in its favor as a fuel, in fact, rather the reverse, and one can understand that there is danger of buckling the crown sheets if not fired in small quantities.

In conclusion, Dr. Stevens stated that it was obvious it would be preferable to sell scrap rubber as a fuel rather than let it burn to waste on the estates. Bark scrap, which contains a certain amount of wood, should make an excellent fuel, as the wood will to some extent moderate the burning of the rubber. The same would apply to the suggestion of burning the scrap rubber with straw. In estimating its heat giving capacity it may be reckoned on a par with petroleum.

ABSTRACTS

Technical — General — Commercial

Coating Chemical Apparatus with Hard Rubber

The *Allgemeine Elektrizitaets Gesellschaft* of Berlin has been granted a patent (see German Patent No. 342,098) on a process for providing chemical apparatus of various sorts or parts of machines with a coating of hard rubber or else making them out of hard rubber in their entirety, so as to render them resistant to the action of acids, alkalies and chlorine.

Rubber is very well suited for covering metal, and when it is completely saturated with sulphur, then it possesses quite a strong resistance to the corrosive action of acids. In the normal process of vulcanization, lasting from about 5 to 8 hours, a hard rubber is obtained which possesses good mechanical properties. This sort of rubber, however, does not withstand the action of acids, alkalies or chlorine. In order to produce a hard rubber, which will be endowed with the power of standing up under exposure to corrosive influences of the sort, mentioned above, the rubber mass, which is admixed with graphite and heavy spar (barium sulphate), must be over vulcanized. In this case the vulcanization lasts from 12 to 48 hours. The ordinary molds and vulcanizing ovens cannot be used very largely in this process for the reason that the apparatus used in chemical processes, which is to be covered with a coating of hard rubber or else made out of hard rubber entirely, are of quite large dimensions. The increase in the temperature at which vulcanization takes place with corresponding increase in the pressure results in the formation of a porous hard rubber.

In the vulcanization process accelerators of vulcanization are used, such as limestone, litharge, magnesium oxide, pyrolusite (manganese dioxide), red lead and the like. These substances are in themselves not resistant to acids, alkalies or chlorine, but when they are incorporated with the rubber and vulcanized to hard rubber, then in that condition they are no longer attacked by these substances, when the proportions of these additional products in the hard rubber mass do not exceed certain maximum limits. On the one hand these proportions must be so large that the product that is obtained after a vulcanization treatment of from 5 to 8 hours—which is the normal time of vulcanization in the manufacture of hard rubber—is over-vulcanized; on the other hand, the proportions must only be so large that the rubber is still able to exert a protective influence against the corrosive chemicals, mentioned above.

In the case of litharge, it has been found that its addition to the rubber mass in the proportion of 5 to 10 per cent, figured on the weight of the entire mixture, or from 12 to 15 per cent, figured on the weight of the rubber alone will give the best results. About 33 parts of sulphur are used with 67 parts of rubber in order to attain the most complete possible saturation of the hydrocarbons in the rubber with the sulphur. In addition to the accelerators, there are added certain fillers, such as graphite, heavy spar, etc., which are in themselves unattacked by the acids, alkalies and chlorine reagents that may be used in the chemical processes in which the apparatus will be employed. The accelerators of vulcanization (litharge and the like) are added in the proportion of 5 to 10 per cent on the weight of the mixture.

Rubberized Fabrics in Colors

The Paragummiwerk m.b. H. has filed an application for a German patent (application number 789,015) on a process of producing various colors on the surface of rubberized fabric by sprinkling thereon finely ground cloth of all sorts of shades. In this way the product may be given any desirable color and at the same time the rubber layer is protected against the influences of the atmosphere. The fabrics that are made in this fashion behave like the finest silk, velvet and cotton cloth and can be used in making bathing caps, rain hoods, rain coats and the like.

Caustic Alkali as Accelerator of Vulcanization

German Patent No. 340,491 is concerned with a process of vulcanizing rubber, in which caustic alkali is used as an accelerator under certain conditions. It was noticed that many of the organic products that were used as accelerators of vulcanization possessed strong basic properties. Likewise the mineral accelerators, such as litharge, magnesia and lime are also basic in nature. It was subsequently found that the rubber mass, obtained from freshly coagulated latex, and thoroughly softened by treatment with caustic soda solution, vulcanized very quickly, but the rubber was rapidly decomposed by this treatment. Then, further experiments showed that caustic soda could be used as an accelerator of vulcanization without simultaneous decomposition of the rubber, if the caustic was first mixed with glycerine or glycol.

The process is somewhat as follows. The glycerine or glycol is heated to a temperature of 175 deg. C. and the caustic soda or potash is dissolved therein. After the mixture has been cooled there is obtained a viscuous solution of caustic soda in glycerine . The proportions in this solution may be one part of the caustic to 3 or 4 parts of glycerine or glycol. About one to two per cent of this solution is added to the rubber composition. This solution has a low vapor pressure; the rubber does not become porous. For example, a rubber mixture containing 5 per cent of sulphur and one to two per cent of the glycerine solution was completely vulcanized by treatment under a pressure of 3.5 atmospheres for 90 minutes. The vulcanized mass did not contain any free sulphur.

Rubber Oil as Rust Protection

A product by this name has been brought out on the market in England, which appears to possess very advantageous properties and to admit of wide application in the metal industry. The oil is applied to the surface of the metal in as thin a layer as possible with a flannel cloth. On drying it forms a skin which will absolutely protect the metal from the corrosive action of the atmosphere. A very careful test of sample, treated in this manner and exposed for quite a long period of time, showed absolutely no cracks or fissures in the coating, when examined under the microscope.

Acceleration of Vulcanization

Societe R. Allenet et Compagnie have been granted a patent on the use of accelerators in the vulcanization of rubber. (see British Patent No. 157,050). Furfuramide and other nitrogen derivatives of furfuryl are used for this purpose. Several furfuryl derivatives in addition to furfuramide are mentioned, in particular the condensation products of pyromuoic aldehyde with ammonia or amines.

German Asbestos Convention

At the beginning of this year an agreement was entered into between the German Asbestos Association and the rubber manufacturers on a price arrangement and a plan for stabilizing the industry. The plan has worked very well up to the present time, in spite of the machinations of a few dissatisfied members of the associations. A convention will soon be held.

Rubber Pavement in Denmark

THE RUBBER AGE recently published a note on the experiments, that are being made with rubber pavements in certain streets of London. Advice has been received that tests are also being made at the present time in Denmark with rubber blocks, 6 square centimeters surface area and about 2 centimeters thick. These were laid on a cement undersurfaee.

NEWS OF THE INDUSTRY

Going Away Dinner To Charles T. Wilson

A dinner was given to Charles T. Wilson, president of the Charles T. Wilson Co., importers of crude rubber and tropical produce, 56 Wall street, New York, by the officers and heads of the company at the Waldorf-Astoria on the evening of December 8 just before his departure for an extended trip to the Far East. Everybody had a tip-top time, the affair being carried out with every attention to the comfort of the guests.

Covers were laid for 20 about a huge circular table, in the center of which a miniature tea garden was laid out interspersed with rubber plants symbolizing two branches of the firm's activities. This

CHARLES T. WILSON

idea originated with Fred B. Peterson who made a trip a year ago to the rubber plantations and tea estates of Java and Ceylon. The tea leaves were distributed among the guests and worn as boutonnieres.

The produce department was identified by facsimilie cocoanuts laid beside each cover, the contents of which was not milk.

Whole spices were passed around by L. M. Trafford and came in handy for deodorizing purposes before the company proceeded to the theater party that followed.

The dinner was preceded by an extemporaneous entertainment, a feature of which was the original monolog in Italian by Renato Favenza of the traffic department, recounting the experiences of a Florentine gentleman during the rush hours in the subway. The singing of the old song, "Every Little Bit Added to What You Got Makes Just a Little Bit More," by Joe Davey, auditor of the company, was deemed particularly appropriate.

The dinner was also a farewell to Sam Swerling, who will leave early in January for London and Amsterdam and will then proceed to Colombo to relieve Samuel Lund, managing director of Wilson, Holgate & Co.

After the dinner the party occupied boxes at the Palace Theater.

Those present were Charles T. Wilson, Henry Perlish, Lloyd M. Trafford, Clarence E. Thornall, Fred B. Peterson, C. G. Hill, George A. Peterson, Louis Le Pan (Akron representative), Douglass Johnstone, L. Beiling, Carl Schutter, Joseph Davey, George Wing, George Mixon, Renata Tavenza, Joseph Levine, Samuel Swerling, George Oroloski, Adolph Anthony and Theodore Lambert.

Mr. Wilson, who was accompanied by Mrs. Wilson, left the next day for Los Angeles and San Francisco sailing on December 20 from the latter city on the steamship *Creole State* for the Philippines, Hong Kong and Singapore where they will stay for some time. He wil' visit the Wilson-Holgate offices in the Far East and return via London about May 1.

Seneca Lewis Gives Dinner to Tire Executives

Seneca G. Lewis, vice president and general manager of the Pennsylvania Rubber Co., Jeannette, Pa. gave a dinner at the Hotel Ritz-Carlton, New York, on the evening of December 7 to the members of the Executive Committee of the Tire Manufacturers' Division of the Rubber Association of America of which he has served as Chairman during the past year.

Those present besides the host were:

Harry T. Dunn, president of the Fisk Rubber Co., and president of the Rubber Association of America, New York.

Edward H. Broadwell, vice president of the Fisk Rubber Co., Chicopee Falls, Mass. and president of the Motor & Accessory Manufacturers' Association, New York.

G. W. Daum, vice president of the Pennsylvania Rubber Co., Jeannette, Pa.

W. W. Duncan, manager of distribution of the Hood Rubber Co., Watertown, Mass.

L. G. Fairbank, General Sales Manager of the Firestone Tire & Rubber Co., Akron, Ohio.

John Kearns, general manager, Lee Tire & Rubber Co., Conshohocken, Pa.

Frank C. Milhoff, General Sales Manager of the Miller Rubber Co., Akron, Ohio.

John V. Mowe, General Sales Manager of the Kelly-Springfield Tire Co., New York.

George S. Shugart, vice president and general sales manager of the United States Tire Co., New York.

Thomas F. Walsh, president of the Swinehart Tire & Rubber Co., Akron, Ohio.

George A. Waddle, of the Goodyear Tire & Rubber Co., Akron, Ohio.

Joseph C. Weston, president of the Ajax Rubber Co., Inc. New York, and vice Chairman of the Tire Manufacturers' Division of the Rubber Association.

Francis I. Reynolds, formerly of the Empire Rubber & Tire Corporation, Trenton, N. J.

F. Haskell Smith, formerly with the New Jersey Car Spring & Rubber Co., Jersey City, N. J.

A. L. Viles, general manager of the Rubber Association of America, New York.

SENECA G. LEWIS

M. E. Clark, associate counsel of the Rubber Association of America, New York.

C. P. McDonald, vice president of the Frank Presbrey Co., New York.

Frank W. Roche, publisher of *Automobile Topics*, New York.

The occasion was a felicitous one in every way, and was carried out in befitting style. The dinner cards were embellished with the photographs of the guests together with some pleasantries aimed at each which were the occasion of no little amusement. All present voted Seneca Lewis an admirable host.

The dinner coming as it did toward the end of Mr. Lewis's term as Chairman of the Tire Division emphasized the importance of the work accomplished under his guidance during the past year, especially the abolition of tire mileage guaranties. His successor will be elected at the annual meeting of the Division early in January.

Annual Meeting of New Jersey Rubber Association

The annual meeting and banquet of the Rubber Manufacturers' Association of New Jersey, was held in the Princeton Room of the Hotel Stacy-Trent, Trenton, on Monday evening, December 12, this being the first meeting of the Association not held at the Trenton Country Club. Nearly all the member companies were represented.

The guests sat down to dinner in the handsomely decorated room and enjoyed an excellent menu.

The election of officers resulted in Charles E. Stokes, vice president and general manager of the Home Rubber Co., Trenton, being elected president of the Association for the coming year to succeed John S. Broughton, president of the United & Globe Rubber Co., who was obliged to decline to serve for another term on account of the pressure of numerous other duties. Mr. Broughton had served two terms as president.

SECRETARY W. HENRY SAYEN, JR.

Frank D. Voorhees of the Voorhees Rubber Manufacturing Co., Jersey City, was elected vice president. W. Henry Sayen, Jr., of the Mercer Rubber Co., Hamilton Square, N. J., was reelected secretary and A. Boyd Cornell, general manager of the Hamilton Rubber Manufacturing Co., Trenton, was reelected treasurer.

A. L. Viles, general manager of the Rubber Association of America of New York, was introduced by Mr. Broughton, who acted as toastmaster, as the speaker of the evening. He gave an interesting address on the work of the Rubber Association during the past year.

Short addresses were also delivered by a number of the members of the New Jersey Association.

Those present and the companies they represented were: John S. Broughton, United and Globe Rubber company and Globe Rubber Tire company; John A. Lambert, Acme Rubber Manufacturing company; William W. McMahan, Ajax Rubber company; A. M. Alexander and W. M. Sanders, Empire Tire and Rubber corporation; Charles E. Stokes and George T. Greton, Home Rubber company; W. Henry Sayen, Jr., and I. Ely Reed, Mercer Rubber company; Abraham M. Sawyer, Vulcanized Rubber company, Morrisville, Pa.; Frank D. Voorhees, Voorhees Rubber Manufacturing company, Jersey City, N. J.; Horace B. Tobin, Woven Steel Hose and Rubber company; Richard Whitehead, Cresent Insulated Wire and Cable company.

Frank Duryea Voorhees

Frank Duryea Voorhees, treasurer and business manager of the Voorhees Rubber Manufacturing Co., Jersey City, N. J., recently elected vice president of the Rubber Manufacturers' Association of New Jersey, has been connected with the business ever since his graduation from Cornell University in 1901. In that year he became secretary of the company of which his father, John J. Voorhees, was founder and president. In 1904 he was made manager of the New York office of his company which under his management expanded into a branch store covering New England and the Middle States. In 1916 he was transferred to the home office and in 1918 he was elected to his present position.

VICE PRESIDENT FRANK D. VOORHEES

A native of Jersey City, he had attended Stevens Preparatory School for three years and one year at the Stevens Institute of Technology previous to his entering Cornell. He is a member of the University Club of Hudson County, N. J., the Sigma Alpha Epsilon fraternity and the Carteret Club of Jersey City.

Affable and courteous at all times he had won a high degree of esteem in the industry of which his choice as vice president of the Rubber Manufacturers' Association of New Jersey is an evidence.

New Branch Managers for Republic

Edwin B. Tozier has recently been appointed district manager of the Chicago territory of the Republic Rubber Corporation, Youngstown, Ohio. He went with the Diamond Rubber Company in 1901 and during this connection was manager at the Cincinnati and Minneapolis branches. In 1912 Mr. Tozier became affiliated with the United States Tire Company, and was district manager of both the Minneapolis and Chicago branches. More recently he was general sales manager of the General Tire & Rubber Co., Akron, Ohio.

S. C. Corey, for the past two years manager of mechanical rubber goods sales in the Philadelphia district for the Diamond division of the B. F. Goodrich Company, has been appointed Philadelphia district sales manager for the Republic Rubber Corp., of Youngstown, Ohio. He has been in the rubber trade for twenty-two years.

TREASURER A. BOYD CORNELL

Sterling Conversion Table Issued

The Crude Rubber Brokerage Company, which recently removed from 99 Water Street to 104 Front Street, New York City, has issued a Sterling Conversion Table correct to 1/10 of 1 per cent. N. Diamond is president of the company and Richard H. Toeplitz, vice president. They will gladly send copies of the table on request.

New Officers for Fabric Tire Hose

The New York offices of the Fabric Tire Hose Co., which for seventeen years past have been located on the ground floor of the building on the northwest corner of Church and Duane streets, were recently removed to Suite 45 on the fourth floor where President William T. Cole and secretary Adolph Dobke now make their headquarters. The factory is located at Sandy Hook, Conn.

Schedule of Rubber Association Meetings

The Rubber Association of America has issued the following schedule of meetings for Monday and Tuesday, January 9 and 10, 1922:

Monday, January 9

Annual Meeting of Association at the Astor Gallery, The Waldorf-Astoria at 2:30 p.m.

Organization Meeting of Newly Elected Board of Directors, The Waldorf-Astoria at 4 p.m.

Annual Dinner Grand Ball Room, the Waldorf-Astoria at 7 p.m.

TRAFFIC COMMITTEE
Yale Club . . . . 10:30 A.M.
Rubber Heel Club of America
Yale Club . . . . 10:30 A.M.
RUBBER RECLAIMERS' DIVISION
Yale Club . . . . 11:00 A.M.
EXECUTIVE COMMITTEE—
MECHANICAL GOODS DIVISION
Yale Club . . . . 11:00 A.M.
MECHANICAL GOODS DIVISION
Yale Club . . . . 12:00 M.
FOREIGN TRADE DIVISION
Yale Club . . . . 12:00 M.
HARD RUBBER DIVISION
Yale Club . . . . 12:00 M.
FOOTWEAR DIVISION
Union League Club . 1:00 P.M.

Tuesday, January 10, 1922

EXECUTIVE COMMITTEE—TIRE MANUFACTURERS DIVISION
Yale Club . . . . 11:00 A.M.
BICYCLE TIRE MANUFACTURERS' COMMITTEE
Yale Club . . . . 11:00 A.M.
ACCOUNTING COMMITTEE
Rubber Association Offices . . . . . 11:00 A.M.
RUBBER CLOTHING DIVISION
Yale Club . . . . 11:00 A.M.
EXECUTIVE COMMITTEE—
RUBBER SUNDRIES DIVISION
Yale Club . . . . 12:00 M.
RUBBER SUNDRIES DIVISION
Yale Club . . . . 1:00 P.M.
RUBBER PROOFERS' DIVISION
Yale Club . . . . 1:00 P.M.
TIRE MANUFACTURERS' DIVISION
Yale Club . . . . 1:00 P.M.

Rubber Association Directors

The terms of the following five directors of the Rubber Association of America expire at the time of the next annual meeting January 9, 1922:

John S. Lowman, the Philadelphia Rubber Works Co., Akron.

A. D. Thornton, Canadian Consolidated Rubber Co., Ltd., Montreal, Canada.

James N. Gunn, United States Tire Co., New York.

Seneca G. Lewis, Pennsylvania Rubber Co., Jeannette, Pa.

John Morgan, The McGraw Tire & Rubber Co., East Palestine, Ohio.

The Nominating Committee of the Association consisting of Messrs B. G. Work, H. S. Firestone, G. B. Hodgman, F. C. Hood and H. E. Sawyer, the last five Past Presidents of the Association, have submitted to the Firm Members a list of nominations from which five directors will be chosen at the annual meeting to succeed those whose terms expire.

G. B. Hodgman Treasurer of Rubber Association

At the meeting of the Board of Directors of the Rubber Association of America held at the Union League Club, New York, on December 15 the resignation of William C. Cox of the Guaranty Trust Co. as treasurer of the Association was accepted, and George B. Hodgman, president of the Hodgman Rubber Co., Tuckahoe, N. Y. was elected to succeed him on January 1, 1922.

GEORGE B. HODGMAN
President of the Hodgman Rubber Co., recently elected Treasurer of the Rubber Association of America

Mr. Hodgman has been prominently identified with the affairs of the Rubber Association from the time of his election as president in 1913 up to the present. He served three terms as president and had the satisfaction of seeing the organization expand during his presidency from a social club somewhat localized in New England and New York into a big business association embracing all branches of the trade in the United States and Canada.

During the past five years he has served the Association on various committees, and was formally president of the Rubber Sundries Manufacturers Association which is now a Division of the general association.

His selection as treasurer of the Association will meet with the unanimous approval of the trade.

Grand Rapids Tire & Rubber To Enlarge

Announcement has been made by the board of directors of the Grand Rapids Tire & Rubber Corporation, of Grand Rapids, Mich., makers of Corduroy cord tires, that the capital stock of the company has been increased to $3,000,000. This action was made necessary in order to enlarge the factory to take care of the increased demand for the product.

The increased capitalization will permit the erection of additional factory buildings with new equipment so as to insure a daily production of 2,000 tires and 4,000 tubes.

The Grand Rapids Tire & Rubber Corporation was organized in March 1920 and since then the company had secured more than 350 exclusive dealers.

December 1 notices were sent out announcing a 2 per cent dividend on preferred stock, payable January 1, 1921.

It is the intention of the company to put in another complete unit, work on which will be started at once.

Mid-West's Monthly Meeting

The regular monthly meeting and luncheon of the Mid-West Rubber Manufacturers' Association was held at the Hotel Morrison, Chicago, December 13, with a good attendance. Thomas Fallon, president of the Lion Tire & Rubber Co., La Fayette, Ind., presided in the absence of the president, W. W. Wuchter of the Nebraska Tire & Rubber Co., Omaha, who is on a trip to California.

After luncheon had been served the tire fabric situation was discussed by R. A. Rheinstorm of the Blekre Tire & Rubber Co., St. Paul, Minn.; N. W. Rozar of the Bibb Mfg. Co., Macon, Ga.; and C. P. Read of Forney & Co., tire fabrics, New York.

The principal speaker of the meeting was W. G. Brown of the Consulting Co., Cincinnati, Ohio, who gave a very interesting general talk on the rubber situation. At the conclusion of his speech he was given a rising vote of thanks.

S. J. Roy of the Hannibal Tire & Rubber Co., Hannibal, Mo., was another speaker.

Some of the members stated that many tire jobbers and dealers realized that prices had been cut too low, and that a general advance in prices was due almost any time after the coming February. They had also found that there was no heavy buying of tires on spring dating as in past years—a fact they interpreted as auguring well for the smaller manufacturers.

Forney & Co., tire fabric dealers, 350 Broadway, New York, were elected to Associate Membership.

The next meeting will be on January 31 and will take the form of an annual meeting and dinner during the week of the Chicago Automobile Show.

The offices of the Denman-Myers Cord Tire Co. at Cleveland have been removed to the company's factory at Warren, Ohio. The Cleveland office will soon be discontinued.

E. G. Wilmer in South America

President E. G. Wilmer of the Goodyear Tire Rubber Co., Akron, is making a six-weeks' trip to South America to observe conditions. It has been suggested that the plan of the previous management of the company to build a manufacturing plant in South America may be taken up as a result of his visit.

Organization changes made by Goodyear to fill vacancies created by the resignation of officials who have joined the new Seiberling Rubber Co., as announced by Sales Manager L. C. Rockhill, are:—

H. J. Thompson becomes manager of the soles and heels department, succeeding H. L. Post, who now is Seiberling's assistant general sales manager. K. W. Wolcott is made assistant to Thompson. H. P. Post becomes assistant manager of the mechanical goods department, succeeding C. A. Jones now with Seiberling. F. W. McConkey succeeds H. I. Walters as manager of tire sales in the southern division and D. O. Kinnie succeeds L. C. Gates in charge of motorcycle tire sales.

T. J. Moore assumes the editorship of the Triangle, succeeding Harold King who goes with Seiberling as director of sales personnel, and Arthur Spore returns to Goodyear as successor to Frank Griffin, as assistant advertising manager. Griffin now is Seiberling's advertising manager.

States Metals Representatives

The States Metals Co., manufacturers and dealers in Chemical supplies and colors, announce that James E. Odell of 200 Devonshire street, Boston, has been appointed New England representative and Harry T. Kraft will caver the New York metropolitan district and Trenton. Mention has already been made of the appointment of J. A. Kendall as Akron representative and of Martin, Hoyt & Milne as San Francisco representatives. Stocks are carried at both of these latter points.

Personal

J. William Oliver of Oliver, Keeler & Scudder, the crude rubber brokers of 24 Stone Street, New York, arrived in New York December 26 on the steamship *Carmania*. He left New York about August 1 and visited Singapore and the primary markets in the Far East returning by way of London.

Paul Elbogen of the Fred Stern & Co. arrived on the steamship *Aquitania* on December 9 from a three months European trip during which he visited England, Holland, France, Germany and Austria.

George B. Hendrick, for the past six years publicity manager of the Fisk Rubber Company, Chicopee Falls, Mass., has been appointed a vice-president of the Massachusetts State Chamber of Commerce with headquarters at Boston.

J. A. Swinehart of Akron, Ohio, who has been in Europe for several months arrived home on December 10.

M. O'Neil, president of the General Tire & Rubber Co., Akron, and family, who have been in Europe the past fall, arrived home December 9.

The R. T. Vanderbilt Notebook

The R. T. Vanderbilt Company, 50 East 42nd Street, N. Y., have issued their third annual notebook to the rubber trade. It is in the form of loose-leaf pages inserted in a real leather notebook bearing the recipient's name in gold letters on the cover.

The material furnished this year consists of about fifty printed pages including the usual calendar, sheets on Engineering, Physical and Chemical data, Conversion Tables, Specifications covering Organic Accelerators, technical and commercial data on crude rubbers, commercial figures on reclaims, a list of the general compounding materials including cost per pound per cubic foot, and per unit volume, also tables on specific gravities and specific volumes, method of computing the various costs, method of figuring energy content, Baumé scales for both light and heavy liquids, data on testing sieves and various other materials of interest to both the Purchasing Agent, the Superintendent and the Chemist.

The material, distributed this year is a collection of suggestions and information furnished by more than fifty chemists. All of these suggestions have been arranged and edited by Dr. A. A. Somerville of the Vanderbilt Company.

Clayton E. Platt Elected on New York Rubber Co., Board

At a meeting of the Board of Trustees of the New York Rubber Co., 84 Reade street held on December 14 Clayton E. Platt of Philadelphia was elected a member of the Board to succeed Henry Montgomery resigned. Mr. Platt has extensive business interests in Philadelphia and is well-known in the rubber trade as proprietor of the Manufacturers' Rubber Co., reclaimers, of Philadelphia and Metuchen, N. J.

The New York Rubber Co. recently acquired the plant of the Cigol Novelty Co., Vineland avenue and 4th street, Paterson, N. J., which was established by F. A. Cigol about two years ago. The manufacture of the New York Rubber Co's. new line of golf design rubber balls will be carried on at this plant where Mr. Cigol will remain as superintendent.

John Acken, president of the company, advises us that their plant at Beacon, N. Y. has been kept busy on their well-known lines of mechanical rubber goods and toys during the past year despite the depression in trade, and that the year-end brings evidences of much better business for 1922.

Mill Notes

The Cord Tire Corporation recently discontinued operations for ten days in order to install additional machinery to take care of their growing business.

Fire caused by static electrical sparks caused an explosion and fire at the B. F. Goodrich Co's plant at Akron on December 15th. The damage was estimated at $3,000.

John A. MacMillan, president of the Dayton Rubber Manufacturing Co., Dayton, Ohio, states that they have recently added seventy-five men to their force.

November Importations of Crude Rubber

Statistics of crude rubber importations during the month of November as compiled by the Rubber Association of America give a total of 19,738 tons as compared with 6,448 tons during the corresponding month of 1920. Importations for the eleven months ending November 30 were 162,673 as compared with 210,060 for the corresponding eleven months last year.

Details for the month were as follows:
(Estimated net weights in long tons of 2240 lbs.)

PLANTATIONS

From	Tons
Batavia	614
Belawan-Deli	1,290
Colombo	1,016
Japan and others	993
Liverpool	70
London	2,815
Malacca	489
Penang	380
Pt. Swettenham	936
Rotterdam	1,666
Singapore	7,508
Sourabaya	854
	18,631

AFRICANS

Antwerp	179
Marseilles	1
London	10
	190

CENTRALS AND GUAYULE

Centrals (Mexico and Central America)	1
Guayule (Mexico)	—
	1

PARAS

Manaos	493
Para	423
	916

GUMS, WASTE RUBBER, ETC., IMPORTED FROM VARIOUS SOURCES

	Tons
Waste	88
Balata	97
Miscellaneous Gums	351

COMPARISON 1920-1921

	Nov.-1920	Nov.-1921	Total Importations 11 months ending, Nov. 30. 1920	1921
Plantations	5,695	18,631	187,256	150,379
Paras	654	916	17,240	10,318
Africana	39	190	3,822	1,836
Central	12	1	702	79
Guayule	48	—	1,005	58
Manicoba and Matto Grosso	—	—	35	3
	6,448	19,738	210,060	162,673

ARRIVALS PLANTATIONS FOR NOVEMBER, 1921, SHOWING PORTS ORIGIN AND ARRIVAL

From	Arrived at	Tons
Batavia	New York	614
Belawan-Deli	New York	1,290
Colombo	New York	1,016
Japan and Others	New York	993
Liverpool	New York	70
London	New York	2,815
Malacca	New York	489
Penang	New York	380
Port Swettenham	New York	936
Rotterdam	New York	1,666
Singapore	New York	7,508
Sourabaya	New York	854
		18,631

ARRIVALS OF PLANTATIONS BY PORTS

Atlantic Ports	
New York	18,631
	18,631

MARKETS

Cottons, Yarns and Fabrics

NEW YORK, DECEMBER 20, 1921

The announcement made by the Department of Agriculture revising its September forecast and its December estimate of the cotton crop caused wide spread effect in both the cotton and the cotton goods markets. The manufacturers of New England were naturally quite upset over a report indicating 8,340,000 bales as against the former government estimate of 6,537,000 bales. The psychological effect was to put a damper upon trading in the cotton goods market and the National Association of Cotton Manufacturers has started inquiry into the reasons for the wide discrepancy shown in the report. Ginning reports had indicated that there was something wrong in the government forecast and to this uncertainty it is thought was due the wide fluctuations in the price of raw cotton during the last two months which have had such a detrimental effect on the cotton goods market.

The Census Bureau's report on December 12 showed a material gain in cotton mill consumption during the month of November. The Bureau placed the figure at 526,610 bales of lint and 53,257 bales of linters. The rate has now increased to about 6,000,000 bales per annum. This compares with the consumption of 494,745 bales of lint and 61,513 bales of linters in October and 332,712 bales of lint and 34,827 bales of linters in November, 1920.

Cotton held in consuming establishments as of Nov. 30 amounted to 1,648,216 bales of lint and 152,840 bales of linters, against 1,404,931 and 159,729 bales, respectively, the previous month and 1,124,259 and 223,925 bales for November of last year. In public storage and at compresses there were 5,271,451 bales of lint and 176,689 bales of linters, as compared with 5,070,750 and 340,608 bales, respectively, a year ago.

Imports of cotton during November amounted to 51,440 bales, compared with 31,629 bales in October and 22,513 bales in November, 1920.

The Census Bureau reported this week that the cotton ginned to Dec. 13 amounted to 7,799,458 running bales, counting 122,849 round bales as half bales and including 25,648 bales of American-Egyptian and 3,064 bales of Sea Island. Last year 10,876,263 running bales were ginned up to this period, this including 197,635 round bales, 4,587 bales of American-Egyptian and 1,316 bales of Sea Island. The ginning by states was as follows: Alabama, 581,080; Arizona, 30-258; Arkansas, 774,567; California, 19,924; Florida, 12,037; Georgia, 813,-623; Louisiana, 279,501; Mississippi, 806,651; Missouri, 67,415; North Carolina, 767,072; Oklahoma, 474,678; South Carolina, 758,566; Tennessee, 291,965; Texas, 2,097,836; Virginia, 15,982. All other states, 8,303.

The following are the closing, highest and lowest prices as of Dec. 20:

	High.	Low.	Closing.
Dec.	18.72	18.50	18.50b
Jan.	18.70	18.24	18.24@18.27
March	18.57	18.10	18.10@18.13
May	18.14	17.71	17.71@17.73
July	17.67	17.25	17.25@17.30
Oct.	16.90	16.50	16.50

EGYPTIAN COTTON

There has been a good demand for long staple peeler running from full quarters to three-eights cotton in strict and good middling but it seems to be scarce, high in price and not all mills are disposed to pay the prices asked. The market for Egyptian uppers was also very active and fair business was done in good staple Sakellarides and also in inferior Sakellarides.

SHEETINGS, DUCKS, AND BURLAPS

The whole trade—spinners, factors and buyers—was hard hit by the government's revised estimate of the total production of raw cotton for 1921. All the cotton goods markets were stunned by the report and it will take some time before the effects have wholly passed away. Until the Crop Reporting Board made its astonishing report the prospect for the future was very promising and immediately this was changed to grave uncertainty. Factors in tire fabrics have taken alarm over the unstaple condition that prevails in the cotton market and early this week most of the important mills have withdrawn all quotations and will not quote prices until the market has steadied. The quotations on tire fabrics as given below are only nominal.

SHEETINGS—There had been a growing demand for sheetings and it was thought that business would continue in good volume throughout the rest of the year but the cotton report produced a complete change for a time. At the present writing the market has firmed and fairly good business is being done.

DUCKS—Very little contract business is passing and manufacturers are buying small quantities at infrequent intervals. The large quantity of duck released by the government in Boston, early in the month and later in Brooklyn, brought good prices.

BURLAPS—The burlap market has been moderately active but the volume of trading has not been very large. Many small lots changed hands and light weights seem to be growing firmer.

ALEXANDRIA

Statistics for the week ending Nov. 5, 1921

	ARRIVALS	EXPORTS	(Bales)		TOTAL EXPORTS	STOCK
	Cantars	England	Con't	America	Cantars	Cantars
This week	212,595	14,272	11,822	11,623	287,019	2,187,983
Same week 1920	196,918	5,025	4,188	3,000	93,729	1,056,714
" " 1919	326,483	16,003	7,271	11,771	263,823	1,390,592
Since 9/1/1921	1,848,270	87,589	57,811	51,056	1,495,287	—
Same time 1920	1,148,796	35,921	22,118	6,079	490,284	—
" " 1919	2,071,656	103,175	20,650	24,629	1,124,064	—

TIRE FABRICS (Square Woven)

17½-ounce Egyptian uppers, combed, lb.	.70	@	.78
17½-ounce Egyptian uppers, carded, lb.	.70	@	—
17¼-ounce Sakellarides, combed, lb.	.85	@	.87
17¼-ounce Sakellarides, carded, lb.	.75	@	.78
17½-ounce Peelers, combed, lb.	.72	@	.77
17½-ounce Peelers, carded, lb.	.50	@	.55

CORD FABRICS

Combed Sakellarides lb.	.85	@	.92
Carded Sakellarides lb.	.80	@	.83
Combed Peeler lb.	.80	@	.85
Carded Peeler lb.	.60	@	—
Combed Egyptian uppers lb.	.75	@	.83
Carded Egyptian uppers lb.	.75	@	—

DUCKS

Belting (pound basis) lb.	.37	@	—
Hose (pound basis) lb.	.30	@	.35
*Enameling lb.	.36	@	.40
Shoe Ducks lb.	.40	@	.42½
Single filling yd.	.15	@	.17
Double filling yd.	.17	@	.18

DRILLS

37xinch 3.25-yard yd.	.10½	@	—
37-inch 2.75-yard yd.	.11½	@	—
37-inch 3.00-yard yd.	.10¾	@	—
37-inch 3.50-yard yd.	.10	@	—
37-inch 3.95-yard yd.	.09¼	@	—

OSNABURGS

30-inch 7-ounce	.08¼	@	.09
40-inch 7-ounce	.10½	@	.11

SHEETINGS

40-inch 2.50-yard yd.	.12¾	@	.13
40-inch 2.85-yard yd.	.11⅛	@	.11¼
40-inch 3.15-yard yd.	.12½	@	—
40-inch 3.60-yard yd.	.10¾	@	.11
40-inch 3.75-yard yd.	.09½	@	.09¾
40-inch 4.25-yard yd.	.08⅝	@	—

BURLAPS
(Carload Lots)

7 -ounce 40-inch yd.	3.70	@	—
7½-ounce 40-inch	3.95	@	—
7½-ounce 45-inch	3.70	@	—
10 -ounce 40-inch	4.80	@	—
10 -ounce 36-inch	4.65	@	—
8 -ounce 45-inch	3.90	@	—
10 -ounce 45-inch	3.40	@	—
10½-ounce 40-inch	4.90	@	—

Chemicals and Compounding Materials

THE GENERAL MARKET—NEW YORK, DECEMBER 20, 1921—The year end dullness has taken possession of the market and operations will doubtless be limited to the smallest of consuming requirements until the turn of the year. During the fortnight there has been lessened activity and quotations have eased off somewhat. The declines have not been pronounced or numerous as buyers showed only a routine interest and prices simply reflected the approach of the inventory season and the close of the year period. The market as a whole has displayed real stability which would seem to indicate that liquidation had run its course and that prices are now near the point where they must needs be attractive to the purchasers. The outlook for future business seems excellent.

ACCELERATORS

Organic

Aldehyde ammonia, crystals	lb.	$ .95	@ 1.00
Aniline oil, bulk basis	lb.	.18	@ .20
Excellerex	lb.	.50	@ .65
Formaldehyde-aniline	lb.	.50	@ .55
Hexamethylene-tetramine (powdered)	lb.	.75	@ .80
Paraphenylene-diamine	lb.	1.60	@ 1.75
Thiocarbanilid	lb.	.45	@ .50
Vulcocene	lb.	..	@ ..

Inorganic

Lead, dry red, bbls.	lb.	.10	@ —
Lead, sublimed white	lb.	.07	@ —
white, basic carbonate	lb.	.06½	@ .07¼
Litharge, commercial, bbls.	lb.	.07½	@ .07¾
Lime, hydrated	lb.	.03	@ —
Magnesia, calcined, extra light	lb.	.50	@ .55
heavy	lb.	.06	@ .07
Magnesite, powdered	ton	50.00	@ 65.00

COLORS

Blacks			
Bone, powdered	lb.	.05½	@ .07½
Carbon black	lb.	.10½	@ .20
Drop	lb.	.07½	@ —
Ivory	lb.	.15	@ .45
Lampblack	lb.	.17	@ .45
Blues			
Prussian	lb.	.50	@ .55
Ultramarine	lb.	.10	@ .35
Cobalt	lb.	.27	@ .35
Rubber maker's blue	lb.	3.50	@ —
Browns			
Iron oxide	lb.	.04	@ .05
Sienna, Italian, raw and burnt	lb.	.06	@ —
Umber, Turkey, raw and burnt	lb.	.04¼	@ .06
Greens			
Chrome, light, c. p.	lb.	.30	@ .32
medium	lb.	.35	@ .36
dark	lb.	.36	@ .45
oxide	lb.	.50	@ .60
Reds			
Antimony, crimson	lb.	.40	@ .45
golden	lb.	.27	@ .30
red	lb.	.21	@ .25
Indian, pure	lb.	.12	@ .15
Oxide, copperas, pure	lb.	.10	@ .14
reduced	lb.	.11½	@ .12½
Para toner	100 lb.	1.40	@ —
Toluidine tone	lb.	2.50	@ 2.75
Tuscan	lb.	.17½	@ .30
Venetian	lb.	.03½	@ .06½
Vermillion, English, quicksilver	lb.	.80	@ .85
domestic	lb.	.25	@ .30
Whites			
Albalith	lb.	.06	@ .06½
Aluminum bronze	lb.	.55	@ .60
Lithopone, domestic (factory)	lb.	.06	@ .06½
Zinc oxide, American Horse Head Special	lb.	.08	@ .08½
XX red	lb.	.07½	@ .08
Zinc oxide, French process, White seal	lb.	.11	@ .11¼
Green seal	lb.	.09¾	@ .10¼
Red seal	lb.	.08¾	@ .09¼
Yellows			
Cadmium sulphide	lb.	1.25	@ 1.50
Chrome, light, c. p.	lb.	.18	@ —
dark	lb.	.18	@ —
medium	lb.	.18	@ —
Ocher, French	lb.	.02½	@ .03½
domestic	lb.	.03	@ .05
Zinc chromate	lb.	.33½	@ —

COMPOUNDING INGREDIENTS

Aluminum flake	ton	25.00	@ 30.00
hydrate	ton	20.00	@ 22.00
Ammonium carbonate, lump	lb.	.08½	@ .13½
Barium dust	ton	100.00	@ —
Barytes, southern off-color	ton	18.00	@ —
Western, prime white	ton	22.50	@ 23.00
Basofor	lb.	.04	@ —
Beta-naphtol, technical	lb.	.33	@ —
Blanc fixe, dry, f.o.b. works	lb.	.03½	@ —
Chalk, precipitated, extra light	lb.	.03½	@ .04¼
heavy	lb.	.02½	@ .03¼
Clay, China, domestic	ton	7.50	@ 9.00
imported	ton	16.00	@ 24.00
Dixie	ton	22.00	@ 32.00
Blue Ridge	ton	22.00	@ 32.00
Fuller's Earth, powdered	ton	22.00	@ 25.00
Fossil flour	ton	60.00	@ ..
Glues, extra white	lb.	.30	@ .40
medium white	lb.	.22	@ .28
cabinet	lb.	.18	@ .32
cabinet low grade	lb.	.15	@ .18
common bone	lb.	.09	@ .14
Graphite flake, bbls.	lb.	.14	@ .20
powdered	lb.	.05	@ .10
Ground glass, fine	lb.	.03½	@ .04
Infusorial earth, powdered	ton	60.00	@ —
bolted	ton	65.00	@ —
Liquid rubber	lb.	.15	@ —
Rotten Stone (powdered)	lb.	.02½	@ .04½
Silica (aluminum	ton	12.00	@ 25.00
Soapstone, powdered	ton	.15	@ .20
Starch, powdered corn	cwt.	1.85	@ 2.10
Talc, domestic	ton	18.00	@ 20.00
French	ton	22.50	@ 30.00
French, high grade	ton	40.00	@ 45.00
Italian	ton	.47	@ .55
Terra Alba, American No. 1	cwt.	1.85	@ 2.00
American No. 2	cwt.	1.25	@ ..
Tripoli	ton	.02½	@ —
Whiting, commercial	cwt.	1.15	@ —
Quaker	ton	13.00	@ 15.00
English cliffstne	cwt.	1.75	@ 2.00
glider's bolted	cwt.	1.20	@ 1.35
Paris white American	cwt.	1.35	@ 1.45
Zinc Oxide— 5 per cent leaded		.07¼	@ .07¾
10 per cent lead sulphate	lb.	.07	@ .07½
20 per cent lead sulphate	lb.	.07	@ .07½
35 per cent lead sulphate	lb.	.07	@ .07½

(Also see whites)

MINERAL RUBBER

Gilsonite	ton	70.00	@ —
Genasco (c. l. factory)	ton	50.00	@ —
(l. c. l. factory)	ton	52.00	@ —
Hard hydrocarbon	ton	33.00	@ 45.00
Soft hydrocarbon	ton	33.00	@ 40.00
Pioneer M.R.	ton	55.00	@ —
Raven M. R.	ton	—	@ —
320 M. P. hydrocarbon (c. l. factory)	ton	47.50	@ 50.00
300/310 M. P. hydrocarbon (c. l. factory)	ton	42.50	@ 45.00
Synpro, granulated, M.R. (factory)	ton	54.50	@ 64.50

SOFTENERS

Acids			
Acetic, 28 per cent	lb.	.02½	@ .03
Carbolic (phenol)	lb.	.09½	@ .16
Cresylic, 97 to 99 p. c. pale	gal.	.70	@ .75
Muriatic, 20 degrees	cwt.	1.45	@ 2.00
Nitric, 36 degrees	cwt.	5.25	@ 6.25
Sulphuric, 66 degrees	ton	17.00	@ 18.00
60 degrees, bulk	ton	11.00	@ 12.00
Tartaric, crystals	lb.	.35	@ —
Alkalies			
Caustic soda, 76 p.c.	cwt.	3.75	@ 3.80
Soda ash, 58 p.c.	cwt.	1.60	@ 2.00
Oils			
Castor, No. 3, bbls.	lb.	.10½	@ —
Corn, crude, bbls.	lb.	.08½	@ .09½
refined	lb.	.10	@ .10½
Chinawood, bbls.	lb.	.13¾	@ .14
Cottonseed,	lb.	.08	@ .08½
Glycerine, c. p. drums	lb.	.14½	@ .15
Linseed, carliod spot	gal	.67	@ —
bbls.	gal.	.70	@ —
Palm, Niger	lb.	.06	@ .06¼
Lagos	lb.	.07½	@ .07¾
Peanut, domestic, crude	lb.	.09½	@ .10
Pine, steam distilled over 930° sp. gr.	gal.	1.20	@ 1.30
Rapeseed, refined	gal.	.83	@ .85
blown	gal.	.95	@ —
Rosin, first rectified	gal.	.37	@ —
second, rectified	gal.	—	@ —
Tar, commercial	gal.	.31½	@ —
Soya Bean, crude, bbls.	lb.	.09	@ .09½
Resins and Pitches			
Cantella gum	lb.	.50	@ ..
Cumar resin	lb.	.09	@ .13
Tar, retort	bbl.	9.50	@ —
kiln burned	bbl.	9.50	@ —
Pitch, Burgundy	lb.	.05	@ .06
coal tar	ton	.01½	@ —
rosin	bbl.	5.85	@ —
Rosin, grade B, ex-yard	bbl.	5.20	@ —
grade K	bbl.	6.00	@ —
Shellac, fine orange	lb.	.72	@ .73
Solvents			
Acetone, drums, c.p.	lb.	.12½	@ .13
Alcohol, denatured, No. 1	gal.	.43	@ .47
Methyl, 95 per cent, drums	gal.	.72	@ —
Ethyl, 190 proof, bbls.	gal.	4.70	@ 4.80
Benzol, 90 per cent	lb.	.27	@ .40
pure	lb.	.27	@ .40
Carbon bisulphide	lb.	.06	@ .07
terachloride	lb.	.10½	@ .12
Dimethylaniline	lb.	.45	@ —
Naptha, motor gasoline, steel bbls.	gal.	.30	@ —
Toluol, pure	gal.	.27	@ .32
Turpentine, spirits	gal.	.82	@ —
wood	gal.	.80	@ —
Xylol, pure	gal.	.40	@ .43
commercial	gal.	.28	@ .35
Waxes			
Beeswax white, pure	lb.	.35	@ .36
Caranuba, No. 1	lb.	.49	@ .50
Ceresin, white	lb.	.09	@ .10
Bayberry	lb.	.20	@ .22
Montan, crude	lb.	.04	@ .04½
Ozokerite, hard, pure, lb.	lb.	.20	@ .22
Paraffin	lb.	.02	@ —
Petrolatum, amber, bbls.	lb.	.05	@ .05½
dark amber,	lb.	.04½	@ —

SUBSTITUTES

Black	lb.	.07	@ .14
White	lb.	.08	@ .16
Brown	lb.	.10	@ .15
Brown factice	lb.	.07	@ .14
White factice	lb.	.09	@ .15½
Paragol, soft and medium	cwt.	—	@ —
hard	cwt.	—	@ —

VULCANIZING INGREDIENTS

Lead, black hyposulphite (black hypo)	lb.	.35	@ —
Orange mineral, domestic	lb.	.11	@ .13
Sulphur chloride (jugs)	lb.	.20	@ —
Sulphur flour Brooklyn brand (c.l.)	cwt.	—	@ —
Brooklyn brand (l. c. l.)	cwt.	—	@ —
Bergenport (c.l.)	cwt.	2.55	@ —
pure soft	cwt.	2.30	@ —
superfine (c. l.	cwt.	2.40	@ 2.90

Barytes—The position of the market continues without material change. Imported material is offered at $30 and domestic is available at $22.50 at $23.00.

Toluol—There has been a very good demand and quotations have continued exceedingly firm. Stocks are said to be very low. Prices for pure range from 27 to 32 cents per gallon.

Linseed Oil—After shading to 67 cents per gallon for domestic linseed oil the market took on a firm tone. While business was fairly active no large transactions were reported.

Aniline Oil—Transactions are in small lots with the majority of large holders quoting 18 at 20 cents per pound.

Palm Oil—Lagos palm was in demand and stocks are becoming very scarce. Quotations are 7½ at 7¾ cents. Niger palm to arrive is offered at 6 at 6¼ cents.

Lithopone—Prices have been well maintained for the domestic article despite offers of foreign material under the domestic figures. There seems to be no intention on the part of leading American producers to alter quotations to meet the price cutting that has been going on for some time by the importers of the foreign product. Domestic quotations remain at 6 cents per pound in bags and 6½ cents barrels in car load lots.

Litharge—Only a routine demand and conditions are not expected to change until after the first of the year. Such business as is being done is in small lots. Quotations range from 7½ cents to 7¾ cents in casks.

Soda Ash—Considerable quantities have been received from abroad. Passing business, however, continues small in the aggregate and offerings are made at $1.60 at $2.00.

Caustic Soda—Demand has slowed up materially with prices lower. Spot lots of standard brands are generally quoted at $3.75 at $3.80.

Rapeseed Oil—The demand continues to improve and the market remains firm with prices at 83 at 85 cents per gallon.

Zinc Oxide—Domestic manufacturers have not changed their price schedule although the bulk of passing business is for the domestic variety.

Talc—Stocks have been moving in a steady volume taking up the importations which have been quite heavy. Domestic manufacturers are quoting $18.00 to $20.00 per ton. French low grade is offered at $22.50 at $30.00 and high grade material at $40.00 to $45.00 per ton.

Whiting—Prices are firm and a steady undertone prevails in this market. Material on spot and for nearby delivery is inclined to be scarce.

Crude Rubber

New York, December 23, 1921

Trading in crude rubber was not brisk during the pre-Holiday season, but in spite of quiet business prices were fairly well maintained, Spot Ribs and First Latex having only fallen off about ¼ cent a pound since our review of the 9th inst.

The one event of outstanding interest during the fortnight was the annual dinner of the trade at the Waldorf on the 20th, which brought out a full representation of the entire trade in New York and a delegation from Akron. It is a matter of record that, although the market was languishing on the afternoon before this event, it opened considerably stronger the next morning, and at one jump recovered from its sluggish condition—a glowing testimonial to the efficacy of trade dinners and the "get-together" spirit generally. This stimulus lasted throughout the day, but had rather worn off by the next morning when the market sagged down again.

It was a matter of satisfaction to the traders that prices did not fall to a point below 20 cents a pound for Spot Ribs at any time during the fortnight, although they receded to that point on the 20th.

Ribbed Smoked Sheets and First Latex continue on identical price levels, but the latter grade, it is noted, appears in an easier position as a result of the almost total lack of any buying interest.

The manufacturers, who had been doing considerable buying early in the month, were out of the market just previous to the holidays with the result that there was virtually no pressure from any buyers, while holders were not inclined to make concessions. The foreign markets continue to hold firm—in this respect strongly supporting the selling interests in this market.

According to statistics issued by the Rubber Association of America importations of crude rubber for the e'even months ending November 30, 1921 totaled 162,673 tons as compared with 210,060 tons for the corresponding period of 1920. Importations for the month of November, however, were 19,738 tons as compared with 6,448 tons for November, 1920 which indicated rubber is beginning to come forward in more sizable weights.

Stocks in London on December 7 were 71,133 tons.

The London market will be closed for the Christmas holidays from Friday December 23 to Wednesday, December 28.

Quotations on the various grades on this date are as follows:

Plantations			
Ribbed Smoked Sheets spot	.20¼	@	.20½
January	.20½	@	.20¾
Jan./March	.21¼	@	.21½
Jan./June	.21¾	@	.22
April/June	.22¼	@	.22½
July/Sept.	.23	@	.23¼
July/December	.24¼	@	.24½
Jan./December	.23	@	.23½
Smoked sheets plain, spot	.18	@	.18½
First Latex Pale Crepe, spot	.20¼	@	.20½
January	.20½	@	.20¾
Jan./March	.21¼	@	.21½
Jan./June	.21¾	@	.22
April/June	.22¼	@	.22½
July/Sept.	.23	@	.23¼
July/Dec.	.24¾	@	.25
Jan./December	.23¼	@	.23½
Amber Crepe No. 1	.19½	@	—
" " " 2	.19	@	—
" " " 3	.18½	@	—
Grand Central Crepe	.18½	@	—
Clean Thin Brown Crepe	.18¼	@	.18½
Light Clean Thin Brown	.18½	@	.18¾
Rolled Brown Crepe spot	.17½	@	.17¾
Rolled Brown Crepe, Jan.-March	.18¼	@	.18½
Paras			
Maderia Fine	.23¾	@	.24
Maderia Fine, January	.25¾	@	.26
Acre Fine	.22½	@	.23
Up-river Fine	.22½	@	.22¾
Up-river Medium	.21	@	.21¼
Up-river Caucho ball	.13½	@	.13¾
Up-river Coarse	.15	@	—
Islands Fine	.21½	@	.22
Islands, Medium	.18	@	nom.
Islands Coarse	.10½	@	.11
Cameta	.11	@	—
Xingu Ball	.12	@	—
Tapajos fine, spot	.21¼	@	—
Pontianac			
Prime Pressed	.13	@	.13½
Plantation	.07	@	—
Bangermassin	.08¼	@	.08½
Palembang	.09¾	@	.10
Siak Gutta Percha	.18¾	@	.19
Prime Macassar	2.75	@	2.85
Balata			
Panama Block	.25	@	.40
Surinam Sheets	.68	@	.70
Columbia Block	.45	@	.47
Venezuela Block	.56	@	.57

Reclaimed Rubber

New York, December 22, 1921

No change has been observed in the reclaiming situation since our report of the 8th inst. The outlook for the industry continues brighter as the price of crude rubber is maintained on higher levels.

Quotations are nominally as follows:

Standard Reclaims			
Floating	$.12	@	$.13
Friction	.12	@	.13
Boots and Shoes	.10	@	.10½
Boots and Shoes (washed	.13	@	.14
Mechanical	.08	@	.10
Hose	.10½	@	.11½
Tires, truck	.08	@	.09
Tires, auto	.09	@	.10
White	.13	@	.14

Scrap Rubber

New York, December 22, 1921

The situation in the scrap rubber trade continues to show a certain degree of activity as the reclaiming situation brightens, but no price changes of note during the past two weeks are to be recorded.

Quotations of this date are as follows:

Auto tire peelings	.01	@	.01¼
Standard White auto	.01	@	.01⅛
Mixed auto	.00⅝	@	.00¾
Bicycle tires	.00½	@	.00¾
Solid truck tires	.00¾	@	.01
Boo's and Shoes	.03¼	@	.03⅝
Arctics, trimmed	.02¼	@	.02½
Arctics, untrimmed	.01¼	@	.01⅜
Inner tubes, No. 1	.03½	@	.03¾
Inner tubes, compounded	.02¼	@	.02½
Battery jars, black	Nominal		
Batteryjars, No.1 bright fracture	"		
Inner tubes, red	.02⅜	@	.02½
Heels and pads	Nominal		
Black mixed	.00¼	@	—
Garden hose	.00½	@	—
Air brake hose	.05⅝	@	—
Red packing	.01½	@	—
Red mixed rubber	.02	@	—
White mixed rubber	.01¾	@	—

Rubber Service Laboratories Company Formed

Among the new Ohio corporations is the Rubber Service Laboratories Company of Akron whose incorporators are given as R. C. Hartong, C. W. Bedford, C. N. Hand and C. Olin North. Several of these names are well known and an interview brings out the following interesting information regarding the new company.

The purposes of the company are two-fold: first, the manufacture and sale of organic accelerators and other materials for the rubber trade and second, consultation, development and laboratory ser-

vice for rubber and allied industries.

A chemical plant has been acquired at Nitro, W. Va. which will be in charge of C. N. Hand, former manager of the chemical plant of the Goodyear Tire & Rubber Co. Further along accelerator lines there is offered consultation, development and service on both manufacture and uses of accelerators. C. W. Bedford, former head of the Goodyear research laboratories, is well known through his publications under the general title of "Reactions of Accelerators during Vulcanization", and is considered an authority on this subject.

Rubber manufacturers as well as manufacturers of raw materials for rubber uses will be interested in the development and compounding service of C. Olin North, formerly a Goodyear compounding expert, who is also known through his publications on this subject. Mr. North states that many rubber companies are unable to maintain a complete staff of technical men and that the Rubber Service Laboratories furnish such a staff temporarily or permanently. Few manufacturers of raw materials for the rubber trade have an experienced rubber man in their laboratories. Such concerns will be able to obtain that service through this organization.

R. C. Hartong, who for years has guided the chemical and compounding departments of the Goodyear Company, is named as the president of the Rubber Service Laboratories. His connection gives stability and causes confidence in this new enterprise. Mr. Hartong is recognized as a conservative rubber expert whose thirteen years of experience will gratefully be used by many old as well as new rubber companies. He states that the policy of his company will be to give satisfactory service, fair business dealings and to guard well the confidences placed in them. They will develop formulae for specific purposes, and will furnish laboratory, tesing, compounding and factory process service, functioning as auxilliary departments where such are needed.

They have established offices in 220 Medford Building, Akron.

Trade Marks Applied For

(Furnished by the National Trade-Mark Company, Washington, D. C.)

November 8, 1921

DE PINNA—No. 141,418. A De Pinna Co., Inc., New York, N. Y. For Shoes, Boots, Overshoes, Rubbers, Bootees and Slippers, of Leather, Fabric, Rubber and Combinations Thereof.

C & C monogram in diamond—No. 150,731. Clinton & Cameron, South Boston, Mass. For a Liquid Compound for Sealing Punctures and Slow Leaks in Pneumatic Tires.

November 22

FEDERAL, with the top of the first letter extended over the word—No. 146,898. The Federal Rubber Company, Cudahy, Wis. For Vehicle-Tires, Re-liners, Outside Tire-Sleeves, Repair-Patches, Packing, Rim-Filler Strips, Inner Tubes, Inside Tire-Sleeves, Repair Fabrics, Hose and Tubing, Belts and Belting, Brake-Lining, Valve-Bases, Flaps, and Transmission-Disks, All Made Wholly or Partly of Rubber.

FEDERAL on a pennant—No. 146,891. The Federal Rubber Company, Cudahy, Wis. For Vehicle-Tires, Re-liners, Outside Tire-Sleeves, Repair-Patches, Packing, Rim-Filler Strips, Inner Tubes, Inside Tire-Sleeves, Repair Fabrics, Hose and Tubing, Belts and Belting, Brake- Lning, Valve-Bases, Flaps, and Transmission-Disks, All Made Wholly or Partly of Rubber.

FEDERAL—No. 146,884. The Federal Rubber Company, Cudahy, Wis. For Vehicle-Tires, Re-liners, Outside Tire-Sleeves, Repair-Patches, Packing, Rim-Filler Strips, Inner Tubes, Inside Tire-Sleeves, Repair Fabrics, Hose and Tubing, Belts and Belting, Brake-Lining, Valve-Bases, Flaps, and Transmission Disks, All Made Wholly or Partly of Rubber.

A Cross with letters P L U S in the four corners, all within a circular border—No. 125,919. Times Square Auto Supply Co., Inc., New York, N. Y. For Automobile-Tires of Rubber and of Combinations of Rubber and Fabrics, Inner Tubes for Tires, Rubber Reliners and Rubber Blow-Out Patches.

KING with a central red panel—No. 125,089. Mrs. A. R. King, Inc., Philadelphia, Pa. For Leather, Rubber and Canvas Shoes.

BLUE RIBBON—No. 142,635. The Miller Rubber Company, Akron, Ohio. For Water Bottles and Bags Designed for Warming or Cooling Parts of the Body, Fountain-Syringes, Combination-Syringes, and Face Bottles and Bags.

C A S & on leaf in angular border—No. 147,498. Claudius Ash, Sons & Company, Limited, London, England. For Rubber Carbo Separating Disks, Dental Rubber, etc.

"IT'S A BENJAMIN-JOHNSTAM SHOO" with picture of a shoe in circle, etc.—No. 146,038. Benjamin I. John Stam, Stoughton, Mass. For Shoes Made of Leather, Rubber, Fabric, Compositions and Combinations Thereof.

HARVARD MILLS—No. 146,473. Winship, Boit & Co., Wakefield, Mass., and New York, N. Y. For Leggins and Gloves of Fabric, Leather, and Combinations Thereof, and Combinations of Rubber and Fabric for Women and Children; Slippers and Shoes of Knitted and Textile Fabrics and Combinations of Same and Leather or Rubber for Men, Women and Children.

November 29.

Picture of orang-outang carrying valise bearing words DR. O-RANG—No. 150,915. Monkey Rubber Co., Inc., Oklahoma, Okla. For Rubber Patches for Mending Rubber Tubes.

FITETITE PATCH above picture of two elephants—No. 152,102. Charles G. Wright, Philadelphia, Pa. For Repair-Patches for Fractured Rubber Goods.

INLAND—No. 152,257. Inland Rubber Company, Chicago, Ill. For Automobile Rubber Tires.

New Incorporations

NEW YORK

The Rubber Distributing Corporation. $10,000. Directors: J. M. Fabra, 41 Third Avenue, East Rockaway; Harry Schultz, East Rockaway, Woodside and Clarence Bird, 51 Delap street, Jamaica—all of New York. Attorney, T. M. Healy, 32 Liberty street, New York.

Waldman and Basson, tires and accessories. $10,000. Incorporators: E. Waldman, L. Basson, F. Weiss. Attorneys, Weiss and Scheuter, 280 Broadway, New York City.

Marco Rubber Corporation, to manufacture rubber boots. $10,000. Incorporators: P. Demartino, R. Bersani, M. S. Manro. Attorney, J. W. Barnell—all of Syracuse.

Carter Auto Garage Co. $30,000. Incorporators: D. W. Kellogg, E. R. Weil, M. J. Bryman. Attorneys, Kellogg and Weil, Buffalo.

Midwood Tire and Accessories Co., Inc., to deal in automobile supplies. $10,000. Incorporators: I. Antell, 1407 Lincoln Place; L. Applebaum, 454 East 46th street; A. Berg, 761 Blake avenue—all of Brooklyn, N. Y. Principal office, Brooklyn, New York.

DELAWARE

Heath-Win Products Co., to manufacture syringes, water bags, etc. $100,000. Incorporators: E. E. Jester, L. D. Jester,—both of Washington, D. C.; J. E. Stanton, R. A. Stanton—both of Chicago, Illinois.

Respess Super Tire Fabric Co., to develop patents. $200,000. Attorney, Capitol Trust Co. of Delaware, Dover.

New York Tire & Rubber Co., to manufacture tires. $25,000. Incorporators: Thomas C. Restifo, Vincent M. Teano, and Agathino Restifo. Agent, Capitol Trust Co. of Delaware.

Commenwealth Tire & Rubber Co., to manufacture tires etc. $50,000. Incorporators: T. L. Croteau, M. A. Bruce, S. E. Dill—all of Wilmington, Delaware. Agent: Corporation Trust Co. of America, Wilmington, Delaware.

The Goodyear Tire & Rubber Company, Inc., to deal in rubber goods, tires etc. $100,000. Incorporators: S. E. Dill, M. A. Bruce, C. H. Blaske—all of Wilmington, Delaware. Agent: Corporation Trust Co. of America, Wilmington, Delaware.

Climax Heel Co., to manufacture rubber heels. $10,000. Incorporators: C. T. Cohee, C. B. Outten and S. L. Mackey—all of Wilmington, Delaware. Agent, Corporation Service Co., 901 Market street, Wilmington, Delaware.

DELAWARE

The Rubber Shock Insulator Company, Inc., to deal in rubber goods, etc. $250,000. Incorporators: C. H. Jarvis, S. B. Phillips, M. F. Vance—all of Dover .Delaware agent, United States Corporation Co., Wilmington, Delaware.

ALABAMA

Keith, Perkins and Ware Tire Co., to deal in tires. $10,000. Incorporators: S. P. Keith, C. R. Perkins and M. S. Ware. Principal office, Bessemer, Alabama.

M. & W. Tire Co., to deal in tires. $10,000. Incorporators: F. A. and E. Morrison; H. Watkins—all of Birmingham, Alabama.

CONNECTICUT

The Blue Ribbon Tire Service, Inc. $25,000. Incorporators: James P. O'Day Franklin B. Alling, Mrs. James P. O'Day and Mrs. Franklin B. Alling. Principal office, Bridgeport, Connecticut.

FLORIDA

Aero Cushion Inner Tire Co. $500,000. Principal office,. St. Petersburg, Florida.

ILLINOIS

The Holmes Rubber Company, to manufacture and deal in automobiles, tires, rubber goods etc. $25,000. Incorporators: Edgar F. Komilly, Elsie E. Holmes and J. L. Holmes. Principal office, 2130 South Michigan avenue, Chicago, Illinois. Representative: Barbour and Schmidt, 35 North Dearborn street, Chicago, Illinois.

Anderson and Davis Co., to buy, sell, manufacture automobile casings, tubes and rubber products of all kinds. $10,000. Incorporators: W. E. Anderson, S. L. Davis and G. R. Parsons. Principal office, 910 South Michigan avenue, Chicago, Illinois.

MARYLAND

General Packing and Rubber Co., to deal in rubber goods. $10,000. Incorporators: Z. R. Lewis, 816 St. Paul street; E. J. D. Cross, 114 East Eager street; E. R. Simpson, 1004 American Building—all of Baltimore, Maryland.

MASSACHUSETTS

The Benjamin-Johnstam Co., to manufacture shoes with rubber between the welt and the outersole. $150,000. Officers: B. J. Stam, president; E. M. Blake, vice president; M. H. Stam, treasurer. Principal office, Stoughton, Massachusetts.

Michigan Rubber Heel Co., to buy, sell and deal in rubber and fiber products. $15,000. Officers: H. W. Lang, president; F. L. Blackhurst, treasurer, W. H. Burgess, director—all of Sears Building, Boston, Massachusetts. Principal office, Boston, Massachusetts.

MISSOURI

The Inter-Guard Tube and Rubber Co., to manufacture an inner tube with special puncture resisting qualities. Principal office, St. Louis, Missouri. President, Louis, Goodhart.

NEW JERSEY

Trinity Rubber Products Co., to make and sell rubber goods. $25.000. Incorporators: Chas. H. Durham, Highland Park; John F. Westburgh, Perth Amboy; Ernest G. Llauck, South River—all of New Jersey.

OHIO

The Portage Rubber Co., to manufacture tires. $1,550,000. Principal office, Akron, Ohio.

Madison Auto Repair Co. $100,000. Principal office, Pittsburg, Ohio.

The Kent Tire & Rubber Co. $5,000. Principal office, Kent, Ohio. Representative, D. M. Mason.

The Century Rubber Co. $500. Principal office, Barberton, Ohio. Incorporators: John W. Campbell, David B. McCloy.

OKLAHOMA

Evergreen Tire Co., to sell tires. $2,000. Incorporators: C. McMachin, G. H. Carter and M. S. Largey—all of Tulsa, Oklahoma. Principal office, Tulsa, Oklahoma.

RHODE ISLAND

Respro Inc., to manufacture rubber goods, woven fabrics etc. $100,000. Principal office, Cranston, Rhode Island.

TEXAS

Moore-North Rubber Co. $8,000. Incorporators: I. W. Moore, E. M. North and E. E. Edgar. Principal office, Fort Worth, Texas.

WEST VIRGINIA

Monongah Auto Supply Co., to deal in tires and automobile accessories. $50,000. Incorporators: K. C. and C. Curry, S. B. Hall, J. D. Anthony, G. M. Stewart—all of Monongah, West Virginia. Principal office, Monongah, West Virginia.

CABARRUS COTTON MILLS

KANNAPOLIS, N. C.

SUPERIOR

Quality Tire Fabrics

EGYPTIAN-PEELER
KARDED & COMBED
CORD & SQUARE WOVEN

M. L. CANNON
President & Treasurer
Kannapolis, N. C.

A. W. REID
Mill Representative
327 S. La Salle St.,
Chicago, Ill.

Security STEEL

QUALITY IS THE KEYNOTE
PRICE HELPS THE HARMONY

The prime purpose of Steel Filing equipment is **PROTECTION** for your records.

That is why **QUALITY** has always been the keynote of Security Steel Construction.

But quality is possible without excessive price. For example, by eliminating a few details.

We have done just that with one of our most popular style cabinets. Result: Up stays the quality, down goes the price to a level that even the smallest business can afford -- actually cheaper than wood. This is a remarkable achievement in cabinet constructon an achievement which assures you the essential quality you must have at a price you don't mind paying.

MAKE US PROVE IT.

STEEL EQUIPMENT CORPORATION

25 West 45th Street, New York

130 Market Street,
Newark, New Jersey

Factories
Avenel, New Jersey